

Adjustable ASBA Seat

Adult Seats

Junior Seat

DEALER: Keep this manual. The procedures in this manual **MUST** be performed by a qualified technician.

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please visit www.invacare.com



Yes, you can.®

⚠ **WARNING**

A QUALIFIED TECHNICIAN MUST PERFORM THE INITIAL SET UP OF THIS SEATING SYSTEM. ALSO, A QUALIFIED TECHNICIAN MUST PERFORM ALL PROCEDURES IN THIS SERVICE MANUAL.

DEALERS AND QUALIFIED TECHNICIANS: DO NOT SERVICE OR OPERATE THIS EQUIPMENT WITHOUT FIRST READING AND UNDERSTANDING (1) THE OWNER’S OPERATOR AND MAINTENANCE MANUAL, (2) THE SERVICE MANUAL (IF APPLICABLE) AND (3) THE SEATING SYSTEM’S MANUAL (IF APPLICABLE). IF YOU ARE UNABLE TO UNDERSTAND THE WARNINGS, CAUTIONS AND INSTRUCTIONS, CONTACT INVACARE TECHNICAL SUPPORT BEFORE ATTEMPTING TO SERVICE OR OPERATE THIS EQUIPMENT - OTHERWISE, INJURY OR DAMAGE MAY RESULT.

⚠ **WARNING**

Invacare products are specifically designed and manufactured for use in conjunction with Invacare accessories. Accessories designed by other manufacturers have not been tested by Invacare and are not recommended for use with Invacare products.

USEFUL TERMS

The following acronyms are used throughout this manual:

ACRONYM	DEFINITION
ADJUSTABLE ASBA	Adjustable Width, Depth, Seat and Back Angle seat frame.

REFERENCE DOCUMENTS

Refer to the table below for part numbers of additional documents which are referenced in this manual.

PART NUMBER	DESCRIPTION
1143192	Adjustable ASBA, PTO and PTO Plus Owner’s Manual

Other documents which may be referenced for more information are the wheelchair base owner’s and service manuals or the seating system owner’s and service manuals.

NOTE: Updated versions of these manuals, including this one, are available on www.invacare.com.

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SPECIAL NOTES

Signal words are used in this manual and apply to hazards or unsafe practices which could result in personal injury or property damage. Refer to the table below for definitions of the signal words.

SIGNAL WORD	MEANING
DANGER	Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Caution indicates a potentially hazardous situation which, if not avoided, may result in property damage or minor injury or both.

NOTICE

THE INFORMATION CONTAINED IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE.

WHEELCHAIR TIE-DOWN RESTRAINTS AND SEAT RESTRAINTS (TRRO OR TRBKTS)

TRRO includes four factory-installed transport brackets and a wheelchair anchored pelvic belt. **TRRO** has been crash-tested in accordance with **ANSI/RESNA WC Vol I Section 19 Frontal Impact Test** requirements for wheelchairs with a 168 lb crash dummy, which corresponds to a person with a weight of 114 to 209 lbs.

TRBKTS includes four factory-installed wheelchair transport brackets. **TRBKTS** has not been crash-tested in accordance with **WC 19**. Use these transport brackets only to secure an unoccupied wheelchair during transport.

As of this date, the Department of Transportation has not approved any tie-down systems for transportation of a user while in a wheelchair, in a moving vehicle of any type. It is Invacare's position that users of wheelchairs should be transferred into appropriate seating in vehicles for transportation and use be made of the restraints made available by the auto industry. Invacare cannot and does not recommend any wheelchair transportation systems.

⚠ WARNING

TRANSPORT READY PACKAGES ARE NOT RETROFITTABLE TO EXISTING MODELS AND ARE NOT FIELD SERVICEABLE.

Refer to the Transport Ready Package (**TRRO**) section of the wheelchair base owner's manual for more information about transporting the wheelchair.

⚠ WARNING

The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, belt **MUST** be replaced immediately.

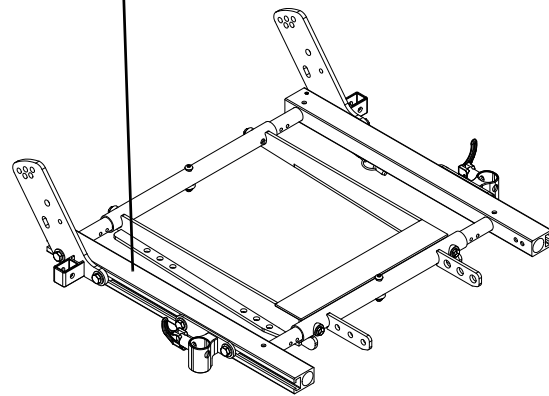
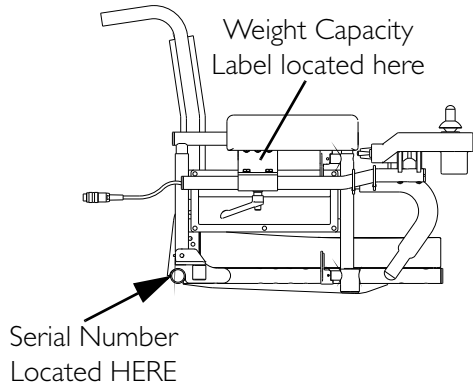
Wheelchairs should be examined during maintenance for signs of corrosion (water exposure, incontinence, etc.). Electrical components damaged by corrosion should be replaced **IMMEDIATELY**.

Wheelchairs that are used by incontinent users and/or are frequently exposed to water may require replacement of electrical components more frequently.

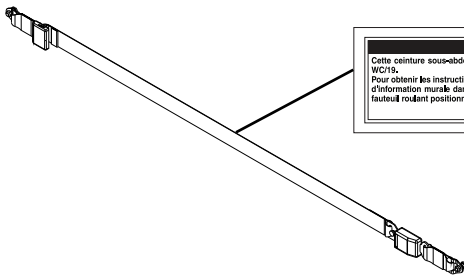
LABEL LOCATIONS

NOTE: Refer to Owner's Manual shipped with wheelchair base or seating system for additional labels located on wheelchair.

All Wheelchairs

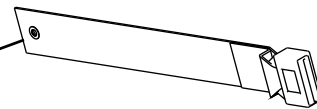


All Wheelchairs with TRRO



Wheelchairs without TRRO

NOTE: Auto style seat positioning strap shown. This label is also on the airline style seat positioning strap.



TYPICAL PRODUCT PARAMETERS

Adjustable ASBA Seat

	ADULT - ADJUSTABLE WIDTH	JUNIOR - ADJUSTABLE WIDTH
SEAT WIDTH RANGE:	16 - 24 inches	12 - 16 inches
SEAT DEPTH RANGE (1-INCH INCREMENTS):	16 - 22 inches	12 - 18 inches
BACK HEIGHT RANGE:	12 - 24 inches	12 - 22 inches
BACK ANGLE RANGE:	85° to 105° in 5° increments	80° to 100° in 5° increments
*SEAT WEIGHT:	43 lbs	36 lbs
ARMRESTS:	Flip Back, Fixed or Adjustable Height (Desk and Full Length)	
WHEELCHAIR UPHOLSTERY OPTIONS:	Nylon	
FRONT RIGGINGS:	Center Mount, Swingaway, Manually Elevating, Power Elevating	
FOOTRESTS:	Telescoping Front Rigging Supports, 2-inch and 4-inch long Pivot Slide Tube	
SEAT TILT ANGLE ADJUSTMENT:	Adjustable (0° to 10°)	
SEAT CUSHION:	Cushion (Optional)	
**WEIGHT LIMITATION:	Up to 400 lbs	Up to 150 lbs
<i>NOTE: All dimensions are ± .50 inches unless otherwise indicated.</i>		
<i>*NOTE: Adult seat weight based on 18 X 18-inch seat frame. Junior seat weight based on 12 X 12-inch seat frame.</i>		
<i>**NOTE: Refer to the wheelchair base or powered seating system owner's manual for the weight limitation of your wheelchair system.</i>		

SECTION I—GENERAL GUIDELINES

⚠ WARNING

SECTION I - GENERAL GUIDELINES contains important information for the safe operation and use of this product.

The information in this manual pertains to wheelchairs without powered seating systems only. Refer to the powered seating system service manual for specific information about servicing those systems.

Repair or Service Information

Except for programming, DO NOT service or adjust the wheelchair while occupied, unless otherwise noted.

Before performing any maintenance, adjustments or service, ALWAYS turn the wheelchair power Off, otherwise injury or damage may result.

TRANSPORT READY PACKAGES ARE NOT RETROFITTABLE TO EXISTING MODELS AND ARE NOT FIELD SERVICEABLE.

Wheelchairs should be examined during maintenance for signs of corrosion (water exposure, incontinence, etc.). Electrical components damaged by corrosion should be replaced IMMEDIATELY.

Wheelchairs that are used by incontinent users and/or are frequently exposed to water may require replacement of electrical components more frequently.

DO NOT overtighten hardware attaching to the frame. This could cause damage to the frame tubing.

Operation Information

Performance adjustments should only be made by professionals of the healthcare field or persons fully conversant with this process and the driver's capabilities. Incorrect settings could cause injury to the driver, bystanders, damage to the wheelchair and to surrounding property.

After the wheelchair has been set-up/adjusted, check to make sure that the wheelchair performs to the specifications entered during the set-up procedure. If the wheelchair does not perform to specifications, turn the wheelchair off IMMEDIATELY and re-enter set-up specifications. Repeat this section until the wheelchair performs to specifications.

Avoid storing or using the wheelchair near open flame or combustible products. Serious injury or damage to property may result.

DO NOT attempt to lift the wheelchair by any removable (detachable) parts. Lifting by means of any removable (detachable) parts of a wheelchair may result in injury to the user or damage to the wheelchair.

ALWAYS keep hands and fingers clear of moving parts to avoid injury.

NEVER leave an unoccupied wheelchair unattended on an incline.

DO NOT engage or disengage the motor locks until the power is in the off position.

DO NOT tip the wheelchair without assistance.

Tire Pressure

Ensure the wheelchair has the proper tire pressure (P.S.I.) before use. DO NOT overinflate the tires. Failure to follow these recommendations may cause the tire to explode and cause bodily harm. The recommended tire pressure is listed on the side wall of the tire.

Weight Limitation

Refer to Typical Product Parameters on page 10 and the wheelchair base owner's manual to determine the weight limit (total combined weight of user and any attachments) of your wheelchair and seat. The lowest indicated weight limitation for any part of your wheelchair overrides the weight limitation of the wheelchair parts by themselves. DO NOT exceed the limit - otherwise, injury or damage may result.

SECTION 2—SAFETY/HANDLING OF WHEELCHAIRS

Pinch Points

⚠ WARNING

TDX and TDX SP Wheelchairs Only - Pinch points exist between the headtube cap and walking beam.

NOTE: For this procedure, refer to FIGURE 2.1.

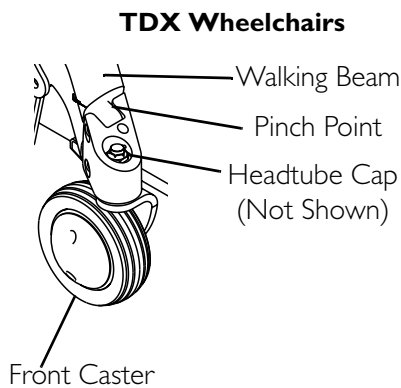


FIGURE 2.1 Pinch Points

SECTION 3—EMI INFORMATION

⚠ WARNING

CAUTION: IT IS VERY IMPORTANT THAT YOU READ THIS INFORMATION REGARDING THE POSSIBLE EFFECTS OF ELECTROMAGNETIC INTERFERENCE ON YOUR POWERED WHEELCHAIR.

Electromagnetic Interference (EMI) From Radio Wave Sources

Powered wheelchairs and motorized scooters (in this text, both will be referred to as powered wheelchairs) may be susceptible to electromagnetic interference (EMI), which is interfering electromagnetic energy (EM) emitted from sources such as radio stations, TV stations, amateur radio (HAM) transmitters, two way radios, and cellular phones. The interference (from radio wave sources) can cause the powered wheelchair to release its brakes, move by itself, or move in unintended directions. It can also permanently damage the powered wheelchair's control system. The intensity of the interfering EM energy can be measured in volts per metre (V/m). Each powered wheelchair can resist EMI up to a certain intensity. This is called its "immunity level." The higher the immunity level, the greater the protection. At this time, current technology is capable of achieving at least a 20 V/m immunity level, which would provide useful protection from the more common sources of radiated EMI.

There are a number of sources of relatively intense electromagnetic fields in the everyday environment. Some of these sources are obvious and easy to avoid. Others are not apparent and exposure is unavoidable. However, we believe that by following the warnings listed below, your risk to EMI will be minimized.

The sources of radiated EMI can be broadly classified into three types:

- 1) Hand-held Portable transceivers (transmitters-receivers with the antenna mounted directly on the transmitting unit. Examples include: citizens band (CB) radios, "walkie talkie", security, fire and police transceivers, cellular telephones, and other personal communication devices).

NOTE: Some cellular telephones and similar devices transmit signals while they are ON, even when not being used.

- 2) Medium-range mobile transceivers, such as those used in police cars, fire trucks, ambulances and taxis. These usually have the antenna mounted on the outside of the vehicle; and
- 3) Long-range transmitters and transceivers, such as commercial broadcast transmitters (radio and TV broadcast antenna towers) and amateur (HAM) radios.

NOTE: Other types of hand-held devices, such as cordless phones, laptop computers, AM/FM radios, TV sets, CD players, cassette players, and small appliances, such as electric shavers and hair dryers, so far as we know, are not likely to cause EMI problems to your powered wheelchair.

⚠ WARNING**Powered Wheelchair Electromagnetic Interference (EMI)**

Because EM energy rapidly becomes more intense as one moves closer to the transmitting antenna (source), the EM fields from hand-held radio wave sources (transceivers) are of special concern. It is possible to unintentionally bring high levels of EM energy very close to the powered wheelchair's control system while using these devices. This can affect powered wheelchair movement and braking. Therefore, the warnings listed below are recommended to prevent possible interference with the control system of the powered wheelchair.

Electromagnetic interference (EMI) from sources such as radio and TV stations, amateur radio (HAM) transmitters, two-way radios, and cellular phones can affect powered wheelchairs and motorized scooters. Also, the electronics used in our powered wheelchair can generate a low level of electromagnetic interference, which however will remain within the tolerances permitted by law.

FOLLOWING THE WARNINGS LISTED BELOW SHOULD REDUCE THE CHANCE OF UNINTENDED BRAKE RELEASE OR POWERED WHEELCHAIR MOVEMENT WHICH COULD RESULT IN SERIOUS INJURY.

- 1) Do not operate hand-held transceivers (transmitters receivers), such as citizens band (CB) radios, or turn ON personal communication devices, such as cellular phones, while the powered wheelchair is turned ON;
- 2) Be aware of nearby transmitters, such as radio or TV stations, and try to avoid coming close to them;
- 3) If unintended movement or brake release occurs, turn the powered wheelchair OFF as soon as it is safe;
- 4) Be aware that adding accessories or components, or modifying the powered wheelchair, may make it more susceptible to EMI (NOTE: There is no easy way to evaluate their effect on the overall immunity of the powered wheelchair); and
- 5) Report all incidents of unintended movement or brake release to the powered wheelchair manufacturer, and note whether there is a source of EMI nearby.

Important Information

- 1) 20 volts per meter (V/m) is a generally achievable and useful immunity level against EMI (as of May 1994) (the higher the level, the greater the protection);
- 2) This device has been tested to a radiated immunity level of 20 volts per meter.
- 3) The immunity level of the product is unknown.

Modification of any kind to the electronics of this wheelchair as manufactured by Invacare may adversely affect the EMI immunity levels.

SECTION 4—SAFETY INSPECTION/ TROUBLESHOOTING

Safety Inspection Checklist

NOTE: Initial adjustments should be made to suit the end user's personal body structure needs and preference. After initial setup, perform these procedures every time the wheelchair is serviced.

NOTE: Refer to the wheelchair base service manual for a complete safety inspection checklist for the base.

- Inspect all fasteners.
- Inspect TRRO/TRBKTS fasteners and hardware.
- Ensure clothing guards are secure.
- Arms are secure but easy to release and adjustment levers engage properly.
- Adjustable height arms operate and lock securely.
- Upholstery has no rips.
- Armrest pad sits flush against arm tube.
- Check that all labels are present and legible. Replace if necessary.
- Clean upholstery and armrests.
- Inspect seat positioning strap for any signs of wear. Ensure buckle latches. Verify hardware that attaches strap to frame is secure and undamaged. Replace if necessary.
- Inspect foam handgrips for damage. If damaged, have them replaced by a qualified technician.
- Check that all labels are present and legible. Replace if necessary.
- Inspect electrical components for signs of corrosion. Replace if corroded or damaged.

Troubleshooting

NOTE: Refer to the wheelchair base service manual and electronics manual for complete mechanical and electrical troubleshooting guides for the base and an explanation of error codes.

SECTION 5—CENTER MOUNT FOOTRESTS

WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

Before performing any maintenance, adjustments or service, ALWAYS turn the wheelchair power off, otherwise injury or damage may result.

NOTE: For complete operating information on Invacare footrests, refer to the appropriate owner's manual listed in Reference Documents on page 2.

Removing/Installing the Manual Center Mount Footrest

NOTE: For this procedure, refer to FIGURE 5.1.

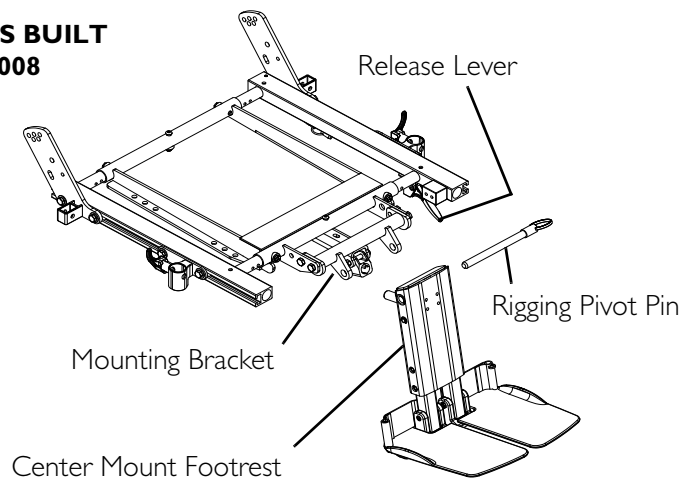
Removing

1. Remove the rigging pivot pin that secures the footrest to the mounting bracket of the seat frame.
2. Hold the footrest with one hand and engage the release lever with the other while simultaneously pulling the center mount footrest out of the mounting bracket of the seat frame.

Installing

1. Engage the release lever with one hand, hold the center mount footrest with the other, and insert the center mount footrest into the mounting bracket of the seat frame.
2. Reinstall the rigging pivot pin to secure the center mount footrest to the mounting bracket of the seat frame.

DETAIL "A" - CHAIRS BUILT BEFORE 12/01/2008



DETAIL "B" - CHAIRS BUILT AFTER 12/01/2008

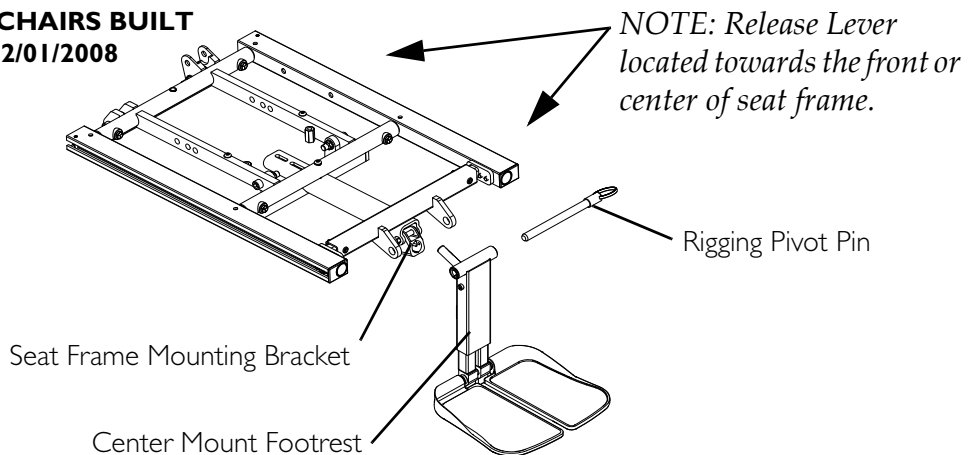


FIGURE 5.1 Removing/Installing the Manual Center Mount Footrest

Adjusting the Height of the Manual Center Mount Footrest

Chairs built before 12/01/2008

⚠ WARNING

After adjusting the center mount footrest, minimum ground clearance for the footrest in the driving position is three inches. If the center mount footrest is in the retracted position and the wheelchair is not moving, the footrest must maintain a minimum of one inch ground clearance - otherwise personal injury and damage may result.

NOTE: For this procedure, refer to FIGURE 5.2.

1. Remove the two mounting screws that secure the footrest extension tube to the extension tube housing.
2. Adjust the footrest extension tube to the desired height.
3. Align the mounting holes on the extension tube housing with the mounting holes on the footrest extension tube.
4. Reinstall the two mounting screws to secure the footrest extension tube to the extension tube housing. Securely tighten.
5. Repeat STEPS 1-3 for the other extension tube.

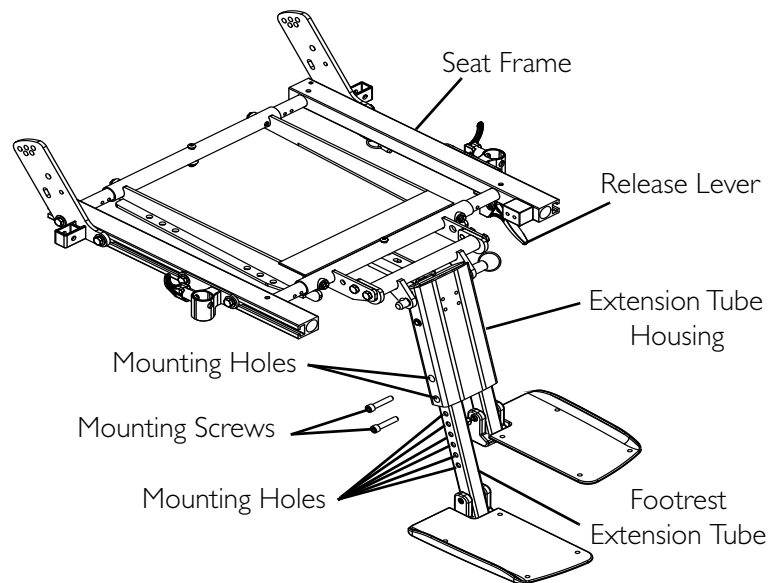


FIGURE 5.2 Adjusting the Height of the Manual Center Mount Footrest -
Chairs built before 12/01/2008

Chairs built after 12/01/2008

⚠ WARNING

While the wheelchair is moving, minimum ground clearance for the front rigging is three inches. If the wheelchair is not moving, the front rigging **MUST maintain a minimum of one inch ground clearance - otherwise personal injury and damage may result.**

NOTE: For this procedure, refer to FIGURE 5.3.

1. Remove the two mounting screws that secure the button head cleat to the extension housing.
2. Adjust the footrest extension tube to the desired height.
3. Secure the extension tube to the desired height with the button head cleat and mounting screws. Securely tighten.
4. Repeat STEPS 1-3 for the other extension tube.

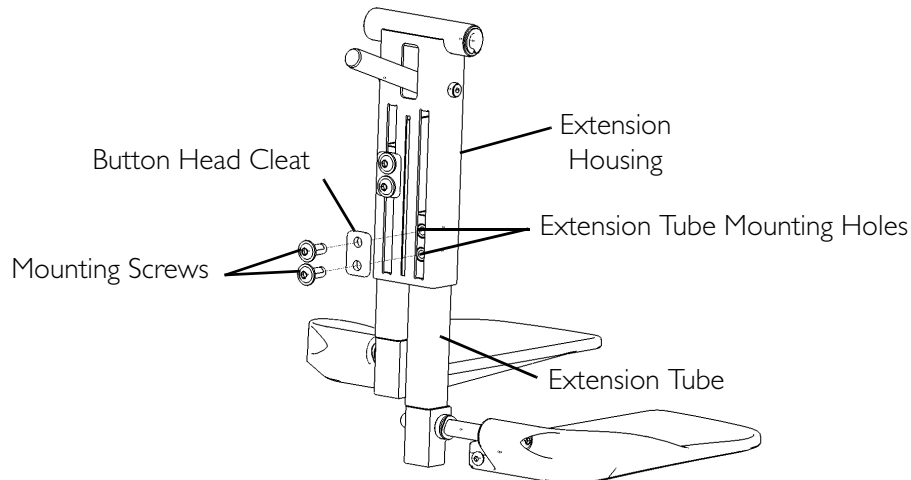


FIGURE 5.3 Adjusting the Height of the Manual Center Mount Footrest -
Chairs built after 12/01/2008

Adjusting the Angle of the Manual Center Mount Footrest

⚠ WARNING

While the wheelchair is moving, minimum ground clearance for the front rigging is three inches. If the wheelchair is not moving, the front rigging **MUST** maintain a minimum of one inch ground clearance - otherwise personal injury and damage may result.

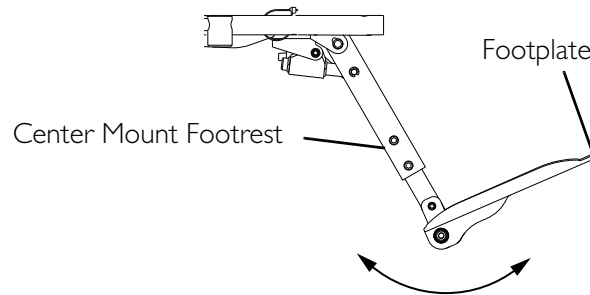
NOTE: For this procedure, refer to FIGURE 5.1 and FIGURE 5.4.

1. Engage the release lever with one hand (not shown) and move the center mount footrest to the desired angle with the other hand.

NOTE: Refer to FIGURE 5.1 for the location of the release lever.

2. Disengage the release lever (not shown) to lock the center mount footrest in the new position.

DETAIL “A” - CHAIRS BUILT BEFORE 12/01/2008



DETAIL “B” - CHAIRS BUILT AFTER 12/01/2008

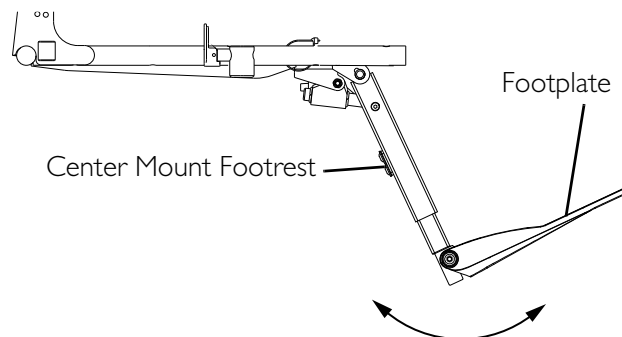


FIGURE 5.4 Adjusting the Angle of the Manual Center Mount Footrest

Adjusting the Footplate Angle

Chairs built before 12/01/2008

NOTE: For this procedure, refer to FIGURE 5.5.

1. Loosen the footplate mounting screw and move the footplate to the desired angle.

NOTE: DO NOT remove the footplate mounting screw.

2. Tighten the footplate mounting screw to secure the footplate in the desired position.
3. Repeat STEPS 1 and 2 for the other footplate.

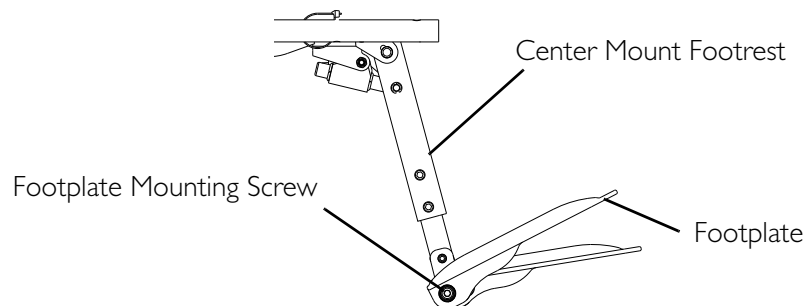


FIGURE 5.5 Adjusting the Footplate Angle - Chairs built before 12/01/2008

Chairs built after 12/01/2008

NOTE: For this procedure, refer to FIGURE 5.6.

1. Flip footplate up.
2. Screw the adjustment screw in or out until the desired angle is achieved.
3. Repeat STEPS 1 and 2 for the other footplate.

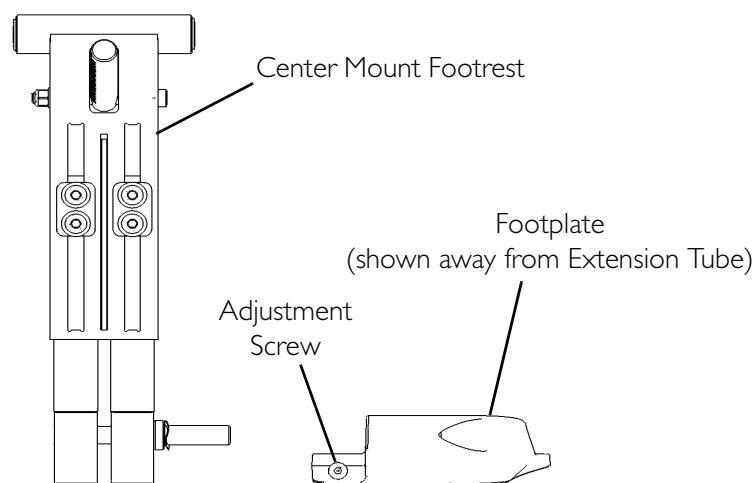


FIGURE 5.6 Adjusting the Footplate Angle - Chairs built after 12/01/2008

Adjusting the Tension of the Flip Up Footplate

Chairs built before 12/01/2008

NOTE: For this procedure, refer to FIGURE 5.7.

NOTE: The tension can be adjusted to increase or decrease the rotation effort of the flip up footplates.

1. Loosen the mounting screw on the footrest angle hinge to decrease the rotation effort.

NOTE: DO NOT remove the footplate mounting screw.

2. Tighten the mounting screw on the footrest angle hinge to increase the rotation effort.
3. Repeat STEPS 1 and 2 for the other footplate.

Chairs built after 12/01/2008

NOTE: For this procedure, refer to FIGURE 5.8.

NOTE: The tension can be adjusted to increase or decrease the rotation effort of the flip up footplates.

1. Loosen the mounting screw on the front rigging angle hinge to decrease the rotation effort.

NOTE: DO NOT remove the footplate mounting screw.

2. Tighten the front rigging angle hinge mounting screw to increase the rotation effort.
3. Repeat STEPS 1 and 2 for the other footplate

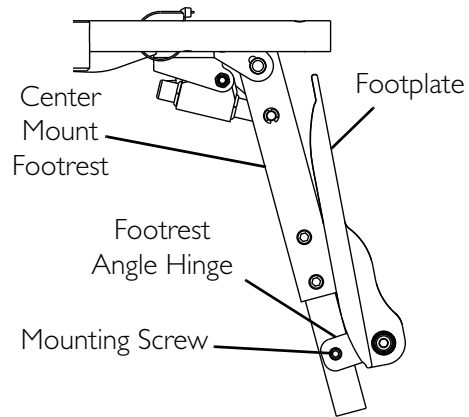


FIGURE 5.7 Adjusting the Tension of the Flip Up Footplate - Chairs built before 12/01/2008

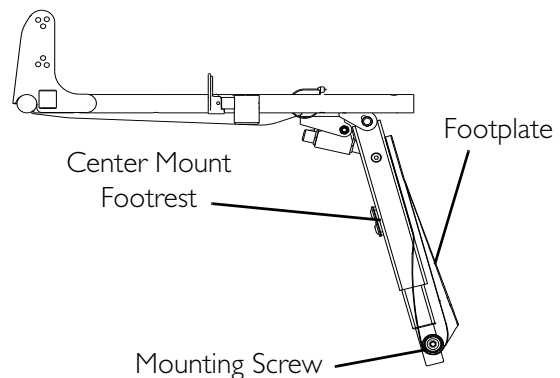


FIGURE 5.8 Adjusting the Tension of the Flip Up Footplate - Chairs built after 12/01/2008

SECTION 6—FRONT RIGGINGS

⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

Before performing any maintenance, adjustments or service, **ALWAYS** turn the wheelchair power off, otherwise injury or damage may result.

Installing/Removing Footrests

PH904A, PHAL4A, 70° and PW93

NOTE: For this procedure, refer to FIGURE 6.1.

1. Turn the footrest to the side (open footplate is perpendicular to wheelchair).
2. Install the hinge plates on the footrest onto the hinge pins on the wheelchair frame.
3. Push the footrest towards the inside of the wheelchair until it locks into place.

NOTE: The footplate will be on the inside of the wheelchair when locked in place.

4. Repeat STEPS 1-3 for other footrest assembly.
5. To remove the footrest, push the footrest release lever inward, rotate footrest outward.
6. Adjust footrest height if desired. Refer to [Adjusting the Footrest Height](#) on page 25.

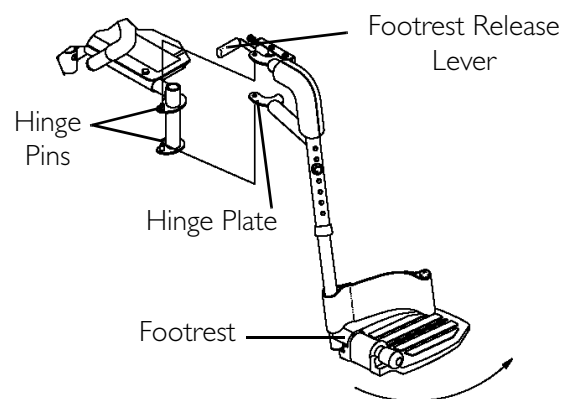


FIGURE 6.1 Installing/Removing Footrests - PH904A, PHAL4A, 70° and PW93

70° Taper

NOTE: For this procedure, refer to FIGURE 6.2

1. Turn the footrest to the side (open footplate is perpendicular to wheelchair).
2. Insert footrest mounting pin into mounting tube.
3. Push the footrest towards the inside of the wheelchair until it locks into place.

NOTE: The footplate will be on the inside of the wheelchair when locked in place.

4. Repeat STEPS 1- 3 for the other footrest assembly.
5. To remove the footrest, push the footrest release lever inward, rotate footrest outward.
6. Adjust footrest height if desired. Refer to [Adjusting the Footrest Height](#) on page 25.

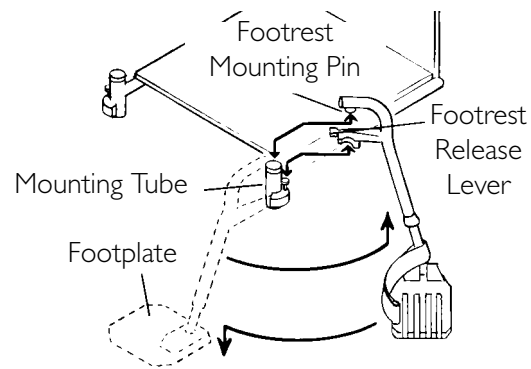


FIGURE 6.2 Installing/Removing Footrests - 70° Taper

Adjusting the Footrest Height

⚠ WARNING

Minimum ground clearance for the footrest is three inches - otherwise personal injury or damage may result.

PH904A and PHAL4A Front Riggings

NOTE: For this procedure, refer to FIGURE 6.3.

1. Loosen, but DO NOT remove, the lug bolt and locknut that secure the lower footrest to the footrest support.
2. Reposition the lower footrest to the desired height.
3. Securely tighten the lug bolt and locknut that secure the lower footrest to the footrest support.
4. Repeat STEPS 1-3 for the opposite side of the wheelchair footrest if necessary.

NOTE: PH904A style front rigging shown. PHAL4A front rigging adjust the same way.

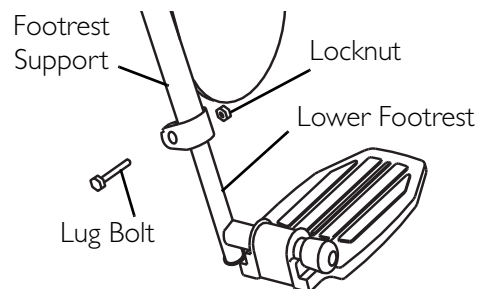


FIGURE 6.3 Adjusting the Footrest Height

70° and PW93

NOTE: For this procedure, refer to FIGURE 6.4.

1. Remove any accessory from the footrest(s).
2. Remove the footrest from the wheelchair. Refer to [Installing/Removing Footrests](#) on page 24.

NOTE: Lay the footrest on a flat surface to simplify this procedure.

3. Remove the mounting screw, washers and locknut that secure the lower footrest assembly to the upper footrest support.
4. Reposition the lower footrest to the desired height.
5. Reinstall the mounting screw, washers and locknut that secure the lower footrest to the footrest support and tighten securely.
6. Repeat STEPS 1-5 for the opposite wheelchair footrest if necessary.
7. Reinstall the footrest(s) onto the wheelchair. Refer to [Installing/Removing Footrests](#) on page 24.
8. Reinstall any accessory onto the footrest(s).

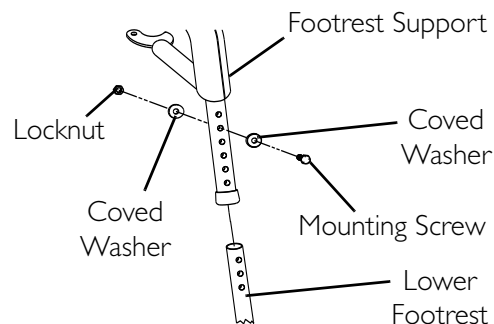


FIGURE 6.4 Adjusting the Footrest Height - 70° and PW93

70° Taper

NOTE: For this procedure, refer to FIGURE 6.5.

1. Remove any accessory from the footrest(s).
2. Remove the footrest from the wheelchair. Refer to [Installing/Removing Footrests](#) on page 24.

NOTE: Lay the assembly on a flat surface to improve access to the hardware.

NOTE: Note the position of the coved spacers before disassembly.

3. Remove the mounting screw and coved spacer that secures the lower footrest assembly.
4. Position the footrest assembly to the desired height.
5. Secure lower footrest assembly with existing mounting screw and coved spacer. Securely tighten.

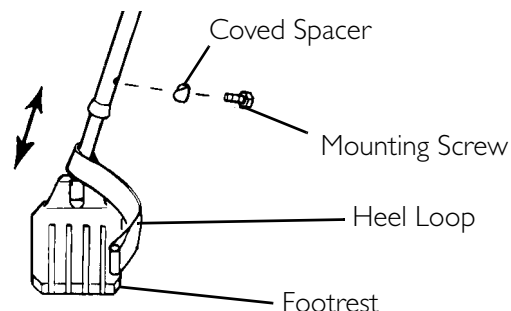


FIGURE 6.5 Adjusting the Footrest Height - 70° Taper

CAUTION

Make sure covered spacers are positioned properly when reassembling to prevent damage to the frame mounting tubes.

6. Reinstall the footrest(s) onto the wheelchair. Refer to Installing/Removing Footrests on page 24.
7. Reinstall any accessory onto the footrest(s).

Replacing Heel Loops

NOTE: For this procedure, refer to FIGURE 6.6.

1. Note the position of hex bolt, covered washers and locknut for reinstallation.
2. Remove the hex bolt, covered washers and locknut that secure the lower footrest to the footrest support.
3. Remove the lower footrest.
4. Remove the phillips bolt, spacer and locknut that secure the heel loop to the lower footrest.
5. Slide the heel loop off the lower footrest.
6. Replace heel loop.
7. Reverse STEPS 1-6 to reassemble.

NOTE: When securing heel loop to lower footrest, tighten the phillips bolt and locknut until the spacer is secure.

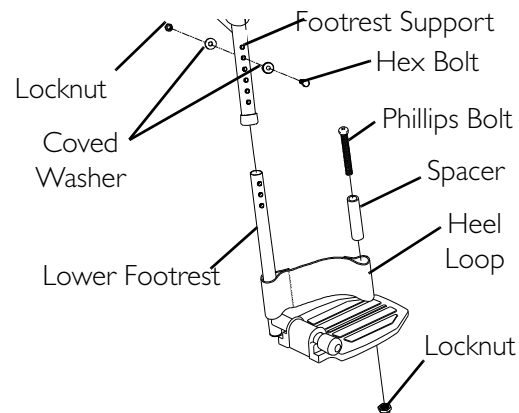


FIGURE 6.6 Replacing Heel Loops

Raising/Lowering Elevating Front Riggings

NOTE: For this procedure, refer to FIGURE 6.7.

1. Perform one of the following:
 - Raising - Pull back on the release lever and raise front rigging to the desired height.
 - Lowering - Support front rigging with one hand away from the release lever. Push release lever downward with other hand.

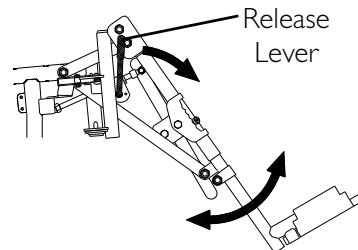


FIGURE 6.7 Raising/Lowering Elevating Front Riggings

Adjusting/Replacing Telescoping Front Rigging Support

⚠ WARNING

If the telescoping tubes need to be extended greater than two inches, then the seat **MUST** be repositioned rearward to ensure stability - otherwise personal injury and/or damage to the wheelchair and surrounding property may result.

NOTE: For this procedure, refer to FIGURE 6.8.

1. Remove the two cap screws, spacers and threaded blocks securing the telescoping front tube to the side rail.
2. Perform one of the following:
 - Slide existing telescoping front rigging support to one of six depth positions.
 - Remove existing telescoping front rigging.
3. Secure the telescoping front tube to the side rail at the desired depth with the existing two cap screws, spacers and threaded blocks.
4. Repeat STEPS 1 to 3 on the opposite side if desired.

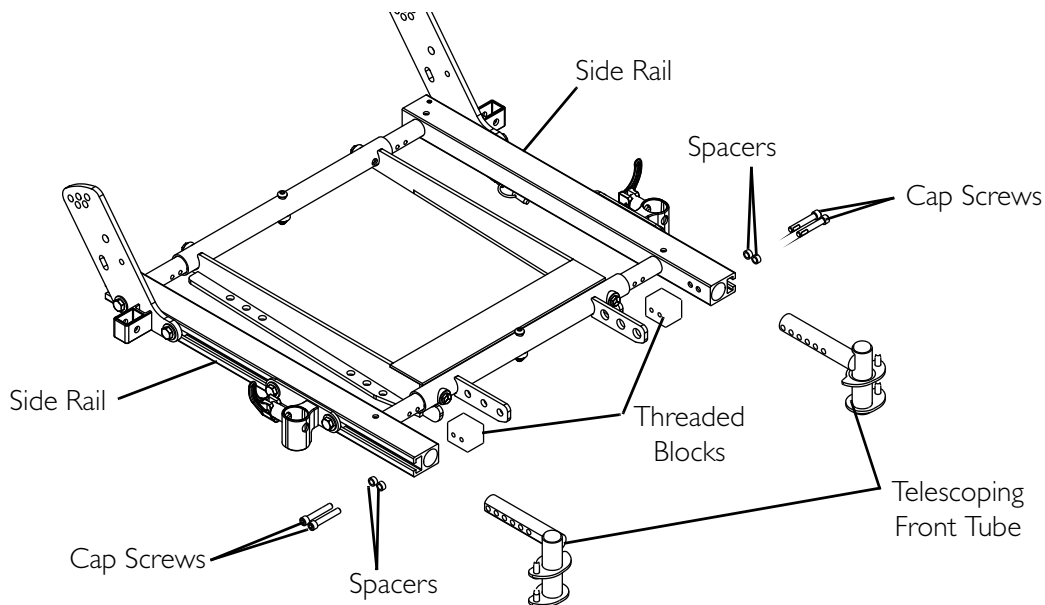


FIGURE 6.8 Adjusting/Replacing Telescoping Front Rigging Support

Installing Adjustable Angle Flip-up Footplate Hinge

NOTE: For this procedure, refer to FIGURE 6.9.

1. Position footplate hinge on the footrest support tube at the desired height.
2. Position mounting screw, washers, spacer, and locknut on the footrest support as shown.
3. Flip the footplate hinge to the up position.

NOTE: The footplate hinge will fall to the down position.

4. Tighten the mounting screw, washer, and locknut that secure the footplate hinge to the footrest support until the footplate hinge remains in the up position.
5. Check the up and down motion of the footplate hinge to make sure the user of the wheelchair can operate the footplates easily.

NOTE: If footplate's motion is too tight, loosen the mounting screw and locknut approximately ¼-turn counterclockwise.

NOTE: If the footplate's motion is too loose, tighten mounting screw and locknut approximately ¼-turn clockwise.

6. Adjust footplate. Refer to [Installing Adjustable Angle Flip-up Footplates](#) on page 29.

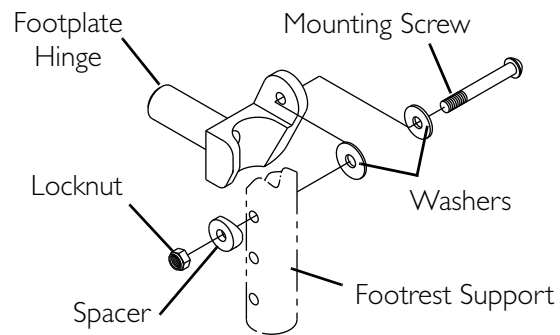


FIGURE 6.9 Installing Adjustable Angle Flip-up Footplate Hinge

Installing Adjustable Angle Flip-up Footplates

NOTE: For this procedure, refer to FIGURE 6.10.

1. Slide the half clamp over the footplate hinge.
2. Hand tighten the two flat screws that secure the footplate to the half clamp.
3. Adjust the footplates to the necessary angle and depth for the user. Refer to [Adjusting Adjustable Angle Flip-Up Footplates](#) on page 30.

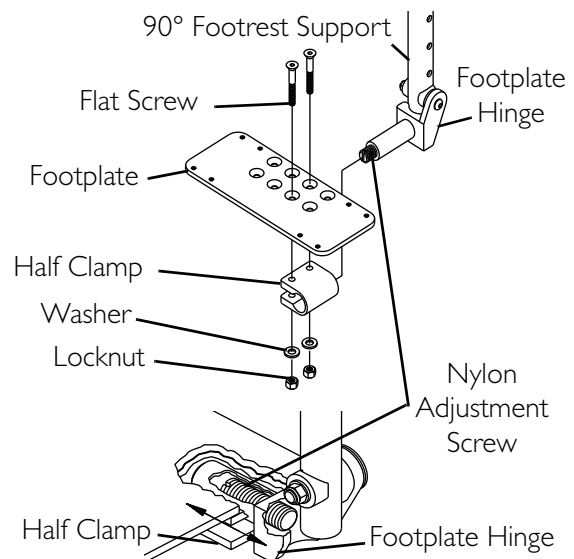


FIGURE 6.10 Installing Adjustable Angle Flip-up Footplates

Adjusting Adjustable Angle Flip-Up Footplates

Depth Adjustment

NOTE: For this procedure, refer to FIGURE 6.10 on page 29.

1. Remove the two flat screws, washers and locknuts that secure footplate to the half clamp.

NOTE: Observe the angle of the footplate for reinstallation.

2. Move footplate to one of four mounting positions.

NOTE: If desired depth is still not obtained, rotate the half clamp on the footplate hinge 180°.

3. Retighten the two flat screws, washers and locknuts.

NOTE: The settings for positioning the footplates on the half-clamps may vary for each footplate.

Angle Adjustment

NOTE: For this procedure, refer to FIGURE 6.10 on page 29 and FIGURE 6.11.

1. Loosen, but DO NOT remove, the two flat screws, washer and locknuts that secure the footplate to the footplate hinge (FIGURE 6.10).
2. Position the footplate to the necessary angle to accommodate the user (FIGURE 6.11).
3. Retighten the two flat screws, washers and locknuts.

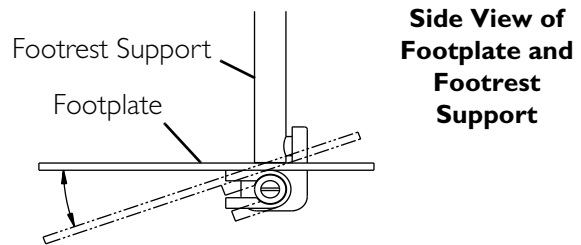


FIGURE 6.11 Angle Adjustment

Perpendicular and/or Inversion/Eversion Adjustment

NOTE: For this procedure, refer to FIGURE 6.10 on page 29 and FIGURE 6.12.

NOTE: It is not necessary to remove the footplate to perform this adjustment.

1. Insert a flathead screwdriver through the half clamp on the footplate (FIGURE 6.10).
2. Slowly turn nylon adjustment screw in or out until footplate is perpendicular to the footrest assembly or the desired inversion or eversion is obtained (FIGURE 6.12).

Front View of Footplate and Footrest Support

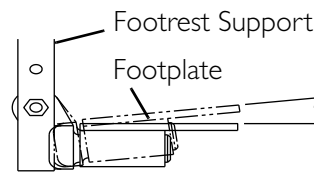


FIGURE 6.12 Perpendicular and/or Inversion/Eversion Adjustment

Replacing Composite/Articulating Footplate Heel Loop

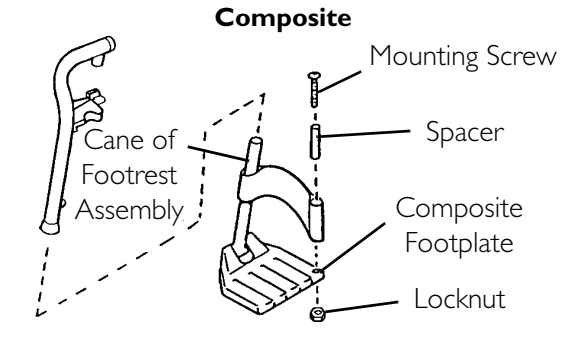
NOTE: For this procedure, refer to FIGURE 6.13.

NOTE: Reverse steps in this procedure to assemble.

NOTE: When securing heel loop to the footrest assembly, tighten mounting screw until the spacer is secure.

Composite

1. Remove the mounting screw and covered washer that secures the lower half of the footrest to the swingaway footrest assembly.
2. Remove the lower footrest assembly.
3. Remove the mounting screw, spacer and locknut that secure the heel loop to the footrest.
4. Slide heel strap over cane of footrest assembly.



Articulating

1. Remove the two mounting screws, washers and spacers that secure the heel loop to the articulating footplate.

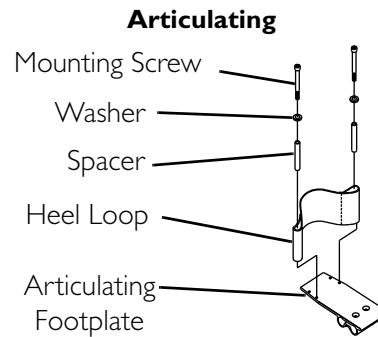


FIGURE 6.13 Replacing Composite/Articulating Footplate Heel Loop

Installing/Removing Elevating Legrests

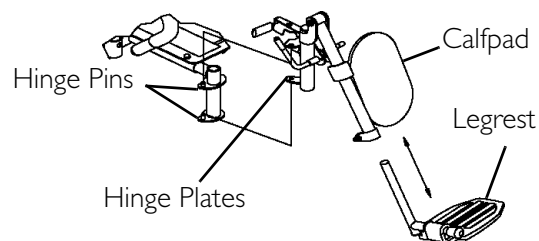
NOTE: For this procedure, refer to FIGURE 6.14.

Installing

1. Turn legrest to side (open footplate is perpendicular to wheelchair).
2. Install the legrest hinge plates onto the hinge pins on the wheelchair frame.
3. Rotate legrest toward the inside of the wheelchair until it locks in place.

NOTE: The footplate will be on the inside of the wheelchair when locked in place.

4. Repeat STEPS 1-3 for the opposite legrest.
5. After the user is seated in wheelchair, adjust footplate to correct height by loosening nut and sliding the lower footrest assembly up or down until desired height is achieved.



Removing

1. Push the legrest release handle toward the inside of the wheelchair (facing the front of the wheelchair).
2. Swing the legrest to the outside of the wheelchair.
3. Lift up on the legrest and remove from the wheelchair.
4. Repeat STEPS 1-2 for opposite side of wheelchair.

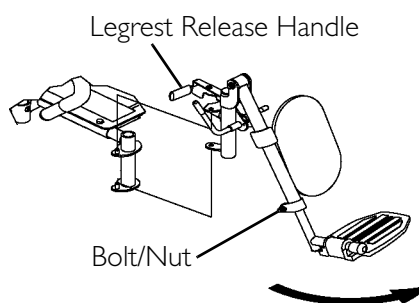


FIGURE 6.14 Installing/Removing Elevating Legrests

Raising/Lowering Elevating Legrests and/or Adjusting Calfpads

NOTE: For this procedure, refer to FIGURE 6.15.

Raising/Lowering Elevating Legrests

1. Perform one of the following:
 - Raising - Pull back on the release lever until the leg is at the desired height.
 - Lowering - Support leg with one hand and push release lever downward with other hand.

Adjusting Calfpads

1. Turn the calfpad towards the outside of the wheelchair.
2. Slide the calfpad up or down until the desired position is obtained.

NOTE: If one of the top two calfpad adjustment positions is being used, the legrest will need to be raised to avoid interference with the front stabilizers while going over obstacles or going up and down ramps. Refer to [Raising/Lowering Elevating Legrests](#) on page 33.

3. Turn the calfpad towards the inside of the wheelchair.

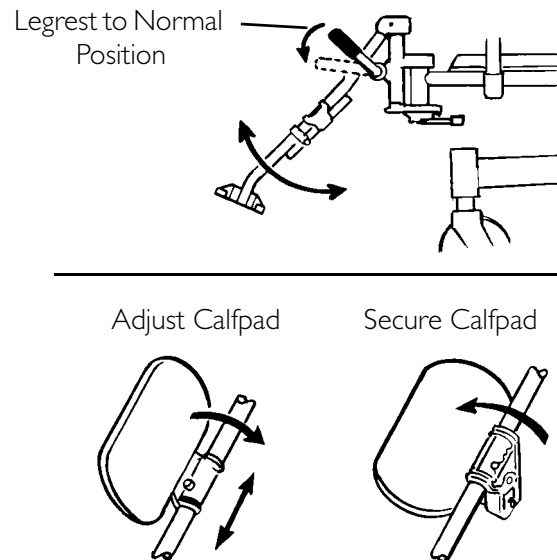


FIGURE 6.15 Raising/Lowering Elevating Legrests and/or Adjusting Calfpads

SECTION 7—POWER ELEVATING LEGRESTS

⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

Before performing any maintenance, adjustments or service, **ALWAYS** turn the wheelchair power off, otherwise injury or damage may result.

Installing/Removing the Power Elevating Legrests

⚠ WARNING

To prevent personal injury, **ALWAYS** verify proper positioning of legs and feet prior to use. Individual user weight may impact the rate of travel for each legrest assembly. If simultaneous operation is desired, select a speed which allows for the most uniform travel.

DO NOT insert fingers between legrest components, otherwise personal injury may occur.

⚠ CAUTION

NEVER allow items to become trapped between the legrest assemblies, otherwise damage to the power legrests may occur.

Ensure that all parts of both power legrests are clear of any obstructions before raising and lowering. Otherwise damage to the power legrests may occur.

NOTE: For this procedure, refer to FIGURE 7.1 on page 35.

Installing the Power Elevating Legrests

1. Turn power legrest to side (open footplate is perpendicular to wheelchair) and align the mounting pin on the legrest with mounting hole in the hanger assembly (Detail "A").
2. Insert the mounting pin of power legrest into the mounting hole of the hanger assembly (Detail "A").

NOTE: Make sure the legrest sits flush on the hanger assembly.

3. Rotate the power legs toward the inside of the wheelchair until it locks in place.

NOTE: The footplate will be on the inside of the wheelchair when locked in place.

4. Repeat STEPS 1-3 for the opposite legrest.
 5. Connect power legrest connector to the harness (Detail "B").
-

6. If necessary, adjust powered legs. Refer to [Adjusting the Power Elevating Legrests](#) below.

Removing the Power Elevating Legrests

1. Disconnect power legrests from the harness.
2. Push powered legrest release handle toward the opposite side of the wheelchair and swing legrest to the outside of the wheelchair.
3. Lift powered legrest and remove from wheelchair.
4. Repeat STEPS 1-3 for opposite power legrest.

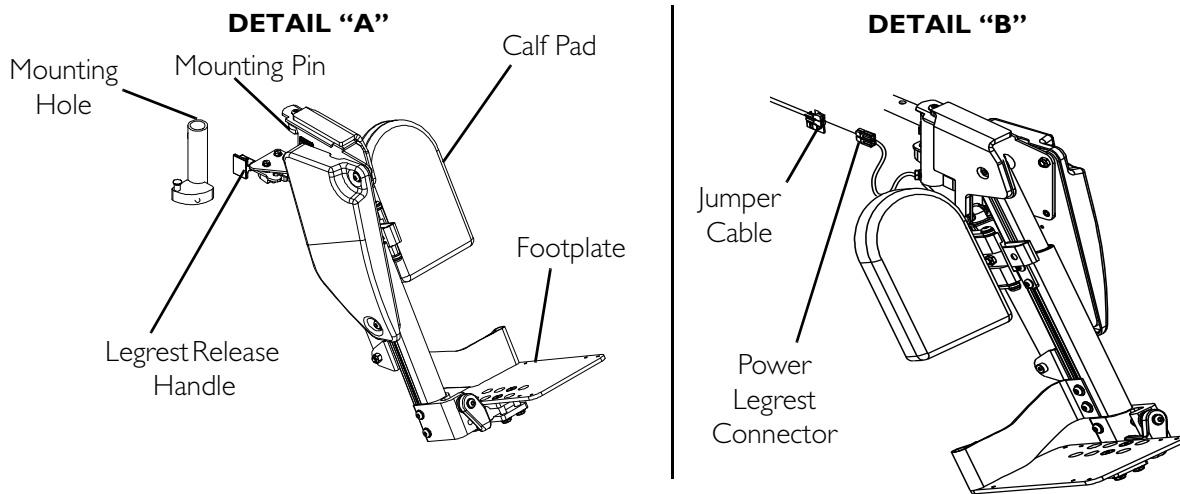


FIGURE 7.1 Installing/Removing the Power Elevating Legrests

Adjusting the Power Elevating Legrests

Adjusting the Footplate

⚠ WARNING

DO NOT remove heel loops without providing some other adequate means of support. Otherwise personal injury may occur.

Adjusting the Footplate Height

NOTE: For this procedure, refer to FIGURE 7.2 on page 36.

NOTE: The following procedure should be performed with the user in the wheelchair.

NOTE: T-nuts ride in the channels of the exterior/interior rails of the power legrests. Refer to FIGURE 7.2.

1. Loosen, but **DO NOT** remove, the two interior button screws that secure the footplate assembly to the T-nuts.

- Loosen, but DO NOT remove, the two exterior button screws that secure the footplate assembly to the T-nuts.
- Loosen, but DO NOT remove, the two button screws that secure the heel loop to the T-nuts.
- Slide footplate assembly up or down, until desired height is achieved.
- While holding footplate assembly in position, tighten all six button screws that were loosened in STEPS 1-3.
- Repeat STEPS 1-5 for opposite footplate if necessary.

NOTE: If this procedure does not provide enough length, adjust the length of the power legrest. Refer to Adjusting the Length for Power Legrest on page 39.

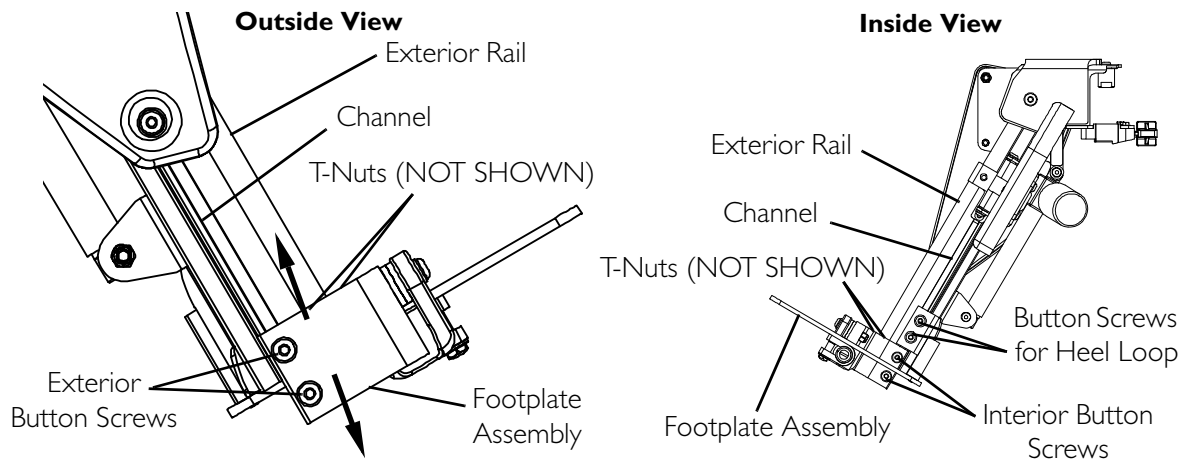


FIGURE 7.2 Adjusting the Footplate Height

Adjusting the Footplate Depth

NOTE: For this procedure, refer to FIGURE 7.3.

- Remove the two flat head screws and the two barrel nuts that secure the footplate to the footplate clamp.
- Reposition the footplate on the footplate clamp.
- Align the desired depth adjustment holes on the footplate to the mounting holes on the footplate clamp.
- Insert the barrel nuts through the bottom of the footplate clamp.
- Install the two flat head screws through the footplate and footplate clamp.
- Securely tighten with two barrel nuts.
- Repeat STEPS 1-6 for opposite footplate if necessary.

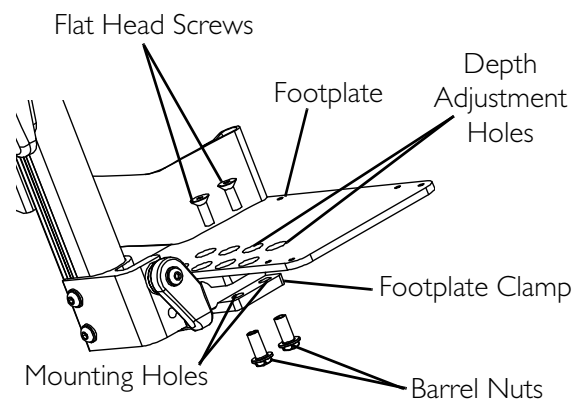


FIGURE 7.3 Adjusting the Footplate Depth

Adjusting the Footplate Angle

NOTE: For this procedure, refer to FIGURE 7.4.

1. Loosen, but DO NOT remove, the two flat head screws and the two barrel nuts that secure the footplate to the footplate clamp (Detail "A").
2. Rotate the footplate clamp on the pivot hinge until the desired angle is achieved (Detail "B").
3. Securely tighten footplate to footplate clamp and hinge pivot with the two flat head screws and barrel nuts.
4. Repeat STEPS 1-3 for opposite side if necessary.
5. For additional angle adjustment, perform the following (Detail "C"):
 - A. Loosen the set screw.
 - B. Rotate footplate up or down to desired position.
 - C. Retighten set screw.

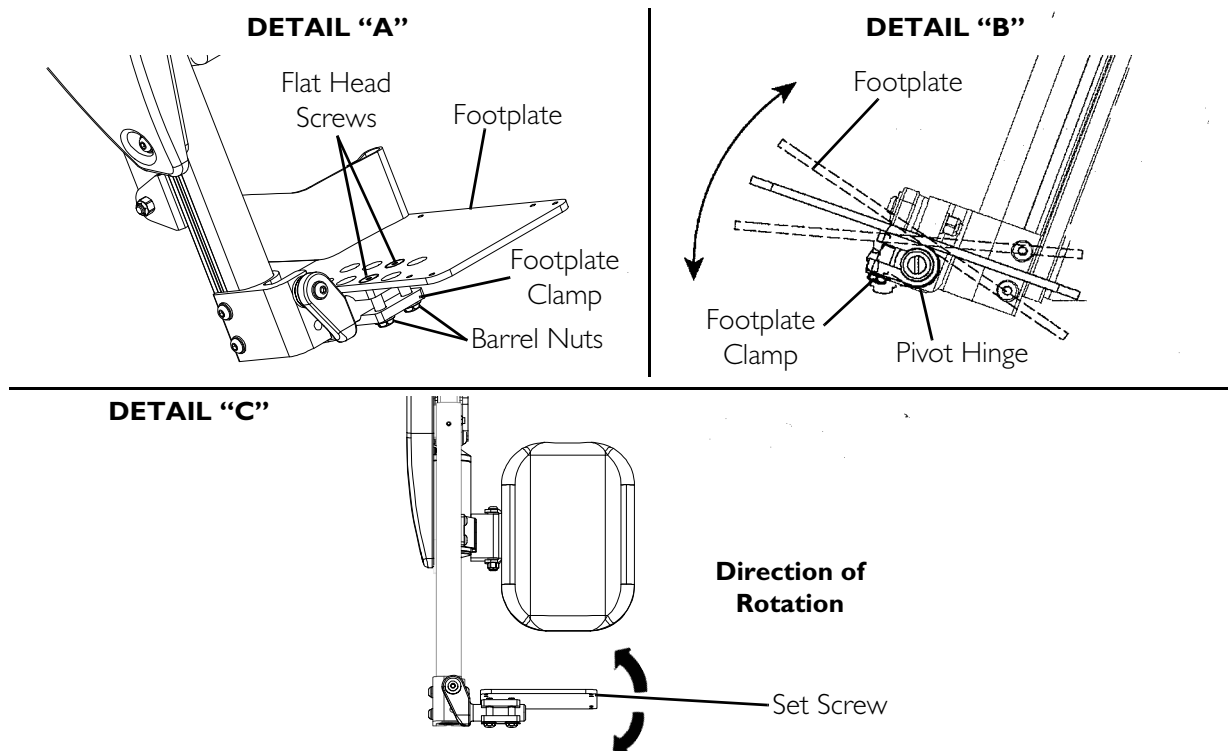


FIGURE 7.4 Adjusting the Footplate Angle

Adjusting the Calf Pad

Adjusting the Calf Pad Width

NOTE: For this procedure, refer to FIGURE 7.5.

1. Remove the two button head screws from the calf pad and calf pad bracket.
2. Reposition calf pad to calf pad bracket to desired mounting position.
3. Align button head screws to mounting holes on calf pad and calf pad bracket.
4. Install button head screws into calf pad bracket and calf pad. Securely tighten.
5. Repeat STEPS 1-4 for opposite side if necessary.

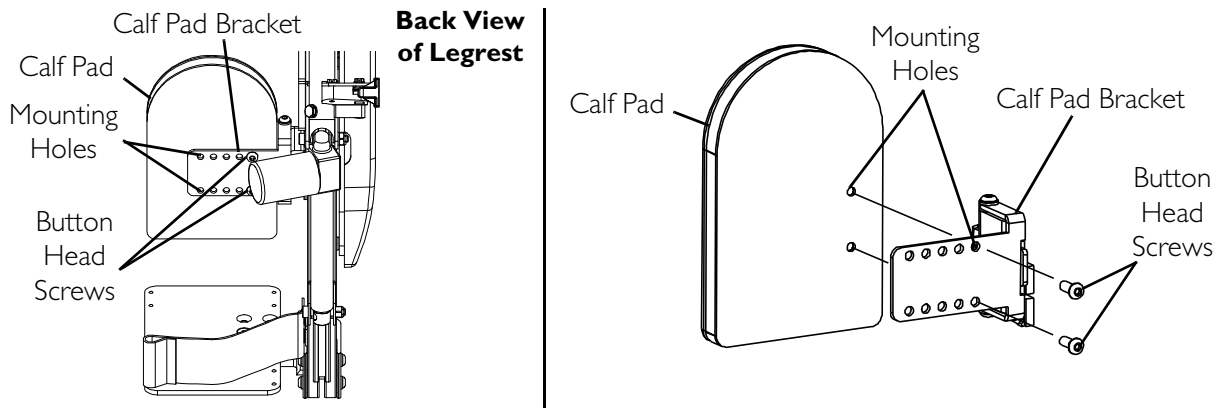
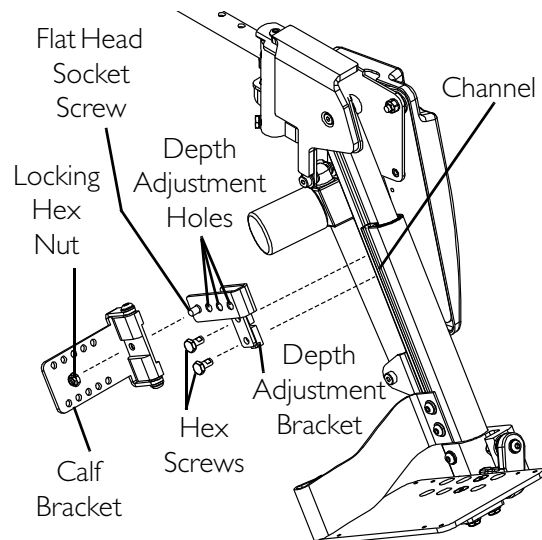


FIGURE 7.5 Adjusting the Calf Pad Width

Adjusting the Calf Pad Depth

NOTE: For this procedure, refer to FIGURE 7.6.

1. Loosen, but **DO NOT** remove, hex screws.
2. Slide calf pad assembly up and out of the channel.
3. Remove the flat head socket screw, and locking hex nut that secure the calf bracket to the depth adjustment bracket.
4. Reposition the calf bracket on the depth adjustment bracket to desired position.
5. Install the flat head socket screw through the calf bracket, depth adjustment bracket and locking hex nut.
6. Tighten locking hex nut to screw until snug. **DO NOT** overtighten nut or calf pad will not pivot properly.



NOTE: Calf pad not shown for clarity.

FIGURE 7.6 Adjusting the Calf Pad Depth

7. Align the two T-nuts on depth adjustment bracket assembly with channel on legrest. Slide calf pad assembly to desired height. Tighten the two hex screws securely.
8. Repeat STEPS 1-6 for opposite side.

Adjusting the Calf Pad Height

NOTE: For this procedure, refer to FIGURE 7.7.

1. Loosen, but DO NOT remove, the two hex head screws that secure depth adjustment bracket to the T-nuts.
2. Slide the calf pad assembly with T-nuts up or down in the channel to desired position.
3. Holding the calf pad assembly in position, tightly secure the hex screws to the T-nuts.
4. Repeat STEPS 1-3 for opposite side if necessary.

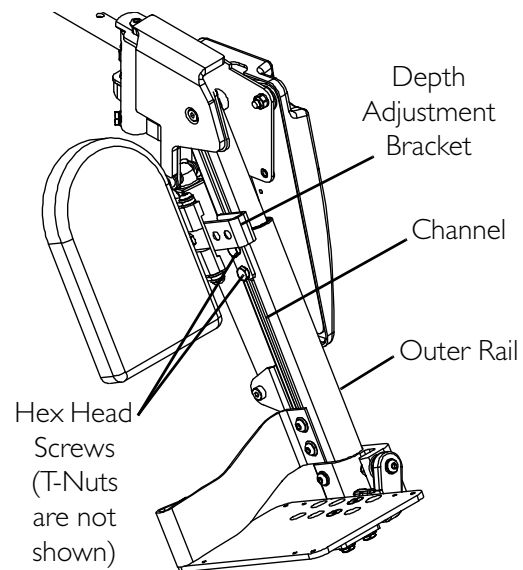


FIGURE 7.7 Adjusting the Calf Pad Height

Adjusting the Length for Power Legrest

NOTE: For this procedure, refer to FIGURE 7.8.

1. Loosen, but DO NOT remove, the button screw (screw also secures lower end of shroud).
2. Slide footplate with outer cover up or down to desired position.
3. Securely tighten button screw.
4. Repeat STEPS 1-3 for remaining legrest.

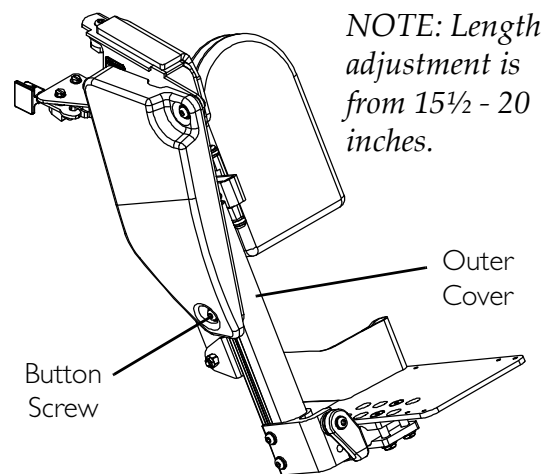


FIGURE 7.8 Adjusting the Length for Power Legrest

Removing/Installing the Power Elevating Legrest Harness

NOTE: For this procedure, refer to FIGURE 7.9 on page 41.

Removing

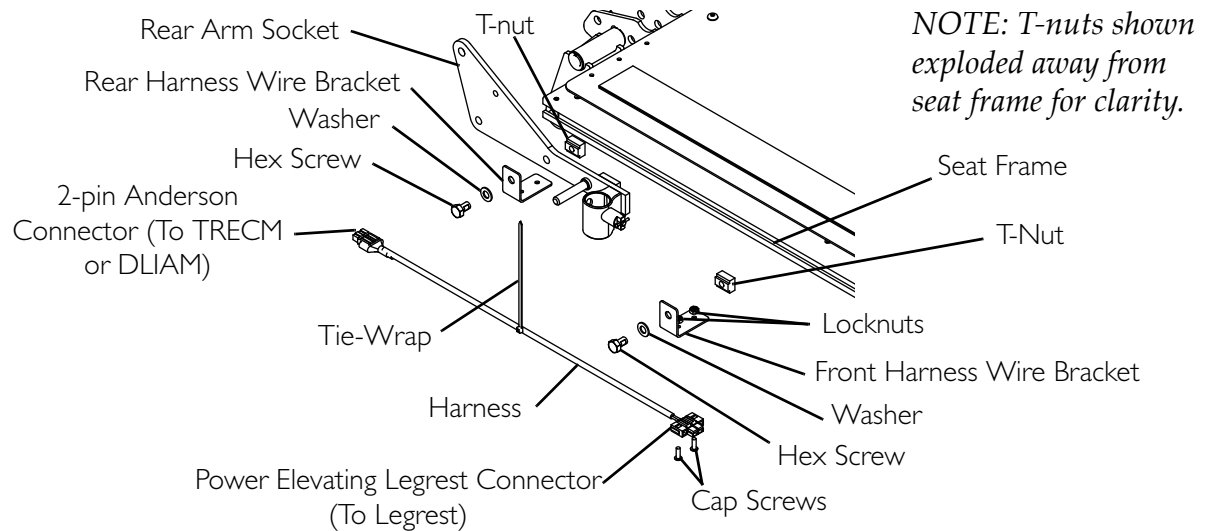
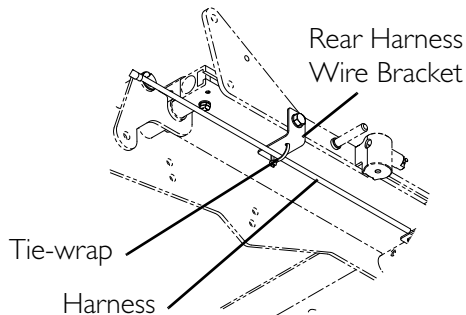
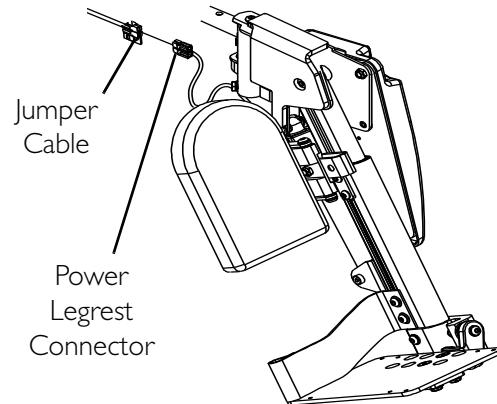
1. Unplug the power elevating legrest connector from the harness.
2. Unplug the harness from the TRECM or DLIAM.
3. Cut the tie-wrap securing the harness to the rear harness wire bracket.
4. Remove the two cap screws and locknuts securing the harness connector to the front harness wire bracket.

Installing

1. If power legrests were not previously installed, perform the following steps:
 - A. Remove the hex screw and washer securing the front of the rear arm socket to the seat frame.
 - B. Install the rear harness wire bracket onto the front mounting hole on the rear arm socket using the hex screw.

NOTE: The hex screw will install into the T-nut in the seat frame.

- C. Install the hex screw through the washer and front harness wire bracket and into the T-nut in the seat frame.
 - D. Repeat STEPS A-C for the opposite side of the wheelchair.
2. Secure the power elevating legrest connector to the front harness wire bracket using the two cap screws and locknuts.
3. Tie-wrap the harness to the rear harness wire bracket (Detail "A").
4. Plug the harness into the TRECM or DLIAM.
5. Repeat STEPS 2-4 for the opposite side of the wheelchair.
6. Install the power elevating legrests. Refer to Installing/Removing the Power Elevating Legrests on page 34.

**DETAIL "A" - TIE-WRAP****DETAIL "B"****FIGURE 7.9** Removing/Installing the Power Elevating Legrest Harness

Removing/Installing the Power Elevating Legrest Actuator

NOTE: For this procedure, refer to FIGURE 7.10 on page 42.

Removing

1. Remove the power elevating legrest from the wheelchair. Refer to Installing/Removing the Power Elevating Legrests on page 34.
2. Disconnect the actuator connector (not shown) from the TRECM or DLIAM connector (not shown).
3. Remove the long shoulder screw, flat washer, washer and locknut securing the top of the power elevating legrest actuator to the power legrest bracket.

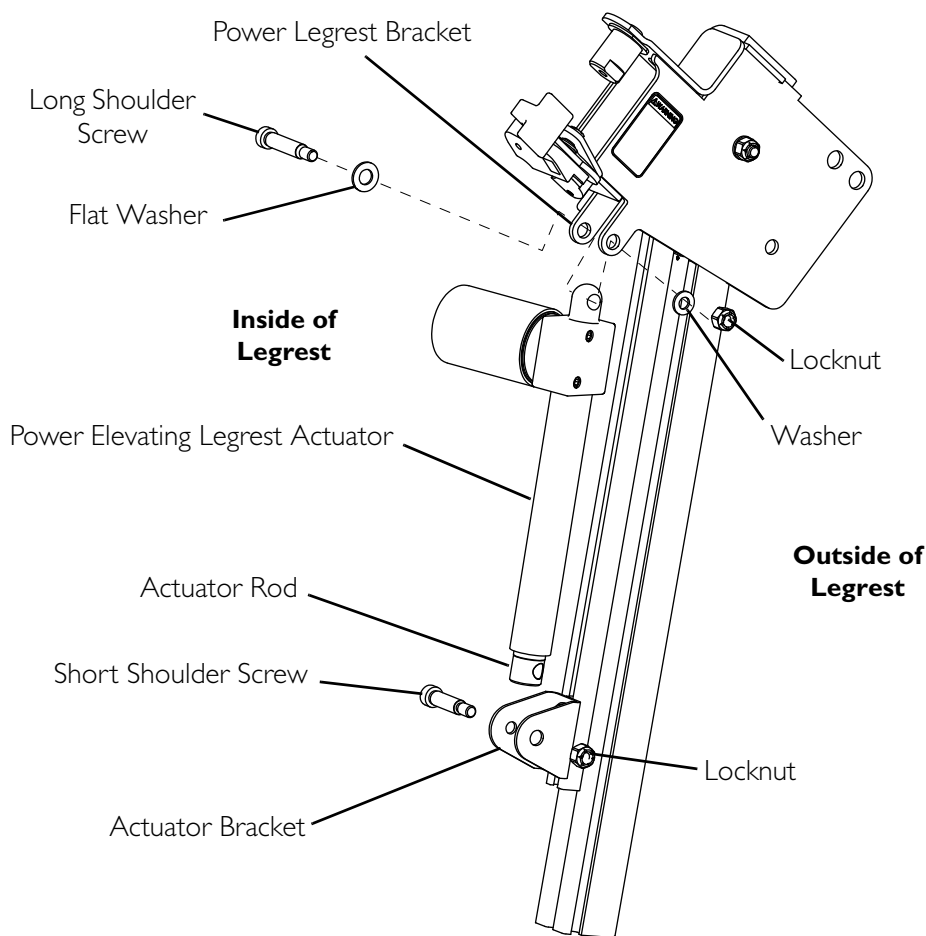
4. Remove the short shoulder screw and locknut securing the actuator rod to the actuator bracket.
5. Remove the power elevating legrest actuator from the legrest.

Installing

1. Unscrew the actuator rod $\frac{1}{2}$ turn.
2. Secure the actuator rod to the actuator bracket using the short shoulder screw and locknut.
3. Secure the top of the power elevating legrest actuator to the power legrest bracket using the long shoulder screw, flat washer, washer and locknut.

NOTE: The shoulder screw should be on the inside of the legrest and the locknut should be toward the outside of the legrest.

4. Connect the actuator connector (not shown) to the TRECМ or DLIAM connector (not shown).
5. Install the power elevating legrest. Refer to Installing/Removing the Power Elevating Legrests on page 34.



NOTE: Rear of right power elevating legrest shown. Left legrest actuator mounts in the same way.

FIGURE 7.10 Removing/Installing the Power Elevating Legrest Actuator

SECTION 8—ARMS

⚠ WARNING

After ANY adjustments, repair or service and before use, make sure that all attaching hardware is tightened securely - otherwise injury or damage may result.

Installing/Removing Flip Back Armrests

⚠ WARNING

Make sure the flip back armrest release and height adjustment levers are in the locked position before using the wheelchair.

NOTE: For this procedure, refer to FIGURE 8.1.

NOTE: Flip back armrest release lever must be in the unlocked (up-horizontal) position when placing the armrest into the arm sockets.

Installing

1. Visually inspect to ensure flip back armrest release lever is in the unlocked (up-horizontal) position.
2. Slide the flip back armrest into the arm sockets on the seat frame.
3. Install the quick-release pin through the rear arm socket and flip back armrest.
4. Lock the flip back armrest by pressing the flip back armrest release lever into the down (vertical) position.
5. Repeat STEPS 1-4 for the opposite flip back armrest.

Removing

1. Unlock the flip back armrest by positioning the flip back armrest release lever into the up (horizontal) position.
2. Remove the quick-release pin that secures the flip back armrest to the rear arm socket.
3. Pull UP on the flip back armrest and remove the armrest from the arm sockets.
4. Repeat STEPS 1-3 for the opposite flip back armrest, if necessary.

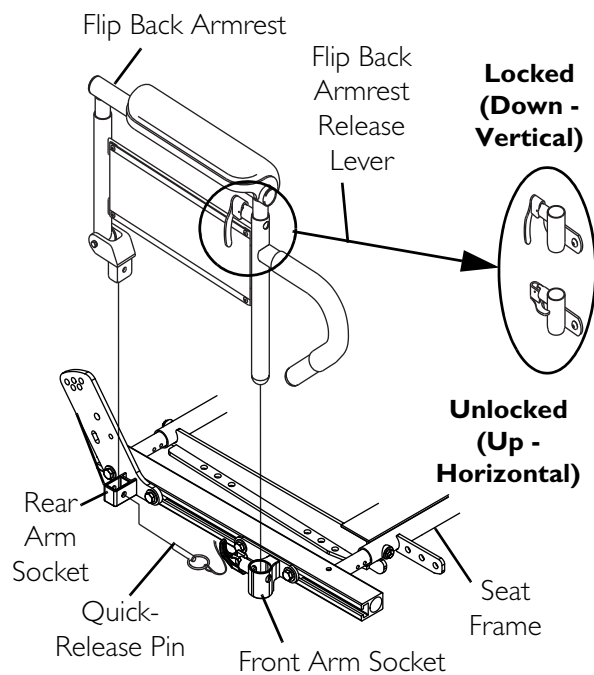


FIGURE 8.1 Installing/Removing Flip Back Armrests

Adjusting Flip Back Armrests

⚠ WARNING

Make sure the flip back armrest release and height adjustment levers are in the locked position before using the wheelchair.

NOTE: For this procedure, refer to FIGURE 8.2.

Positioning Flip Back Armrests for User Transfer

1. Unlock the flip back armrest by pulling the armrest release lever into the up (horizontal) position.

⚠ WARNING

Armrest release lever **MUST** remain in the horizontal position during transfer, otherwise injury may result.

2. Pull up on the flip back armrest and remove the armrest from the front arm socket.
3. Continue to pull up on the flip back armrest until the armrest is out of the way.
4. Repeat STEPS 1-3 for opposite flip back armrest, if necessary

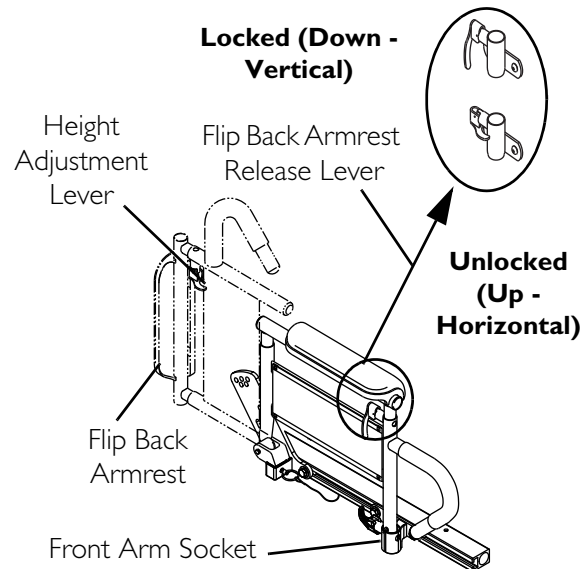


FIGURE 8.2 Adjusting Flip Back Armrests

Positioning Flip Back Armrests for Use

1. Make sure the flip back armrest release lever is in the up (horizontal) position.
2. Install the flip back armrest into the front arm socket.
3. Lock flip back armrest by pressing flip back armrest release lever into the down (vertical) position.
4. Lift up on flip back armrest to make sure the armrest is locked in place.
5. Repeat STEPS 1-4 for opposite flip back armrest, if necessary.

Adjusting

1. Unlock flip back armrest by pulling height adjustment lever into the up (horizontal) position.
2. Adjust the flip back armrest to the desired height.
3. Lock flip back armrest by pushing height adjustment lever into the down (vertical) position.

Installing/Removing the Cantilever Arms

NOTE: For this procedure, refer to FIGURE 8.3.

NOTE: Reverse this procedure to remove the cantilever arm.

1. Insert the a flanged bearing into each side of the cantilever arm mounting tube.
2. Put the cantilever arm into place on the back cane mounting bracket.
3. Insert the pivot arm bushing into the cantilever arm mounting tube.
4. Attach the cantilever arm to the back cane mounting bracket with a socket head cap screw.
5. Adjust the angle of the cantilever arm to accommodate the user. Install the socket head cap screw through the slot in the cantilever arm mounting bracket and into the hole in the pivot arm bushing. Tighten the socket head cap screw.
6. Insert the socket head screw into the hole in the back cane mounting bracket. Tighten the socket head screw.

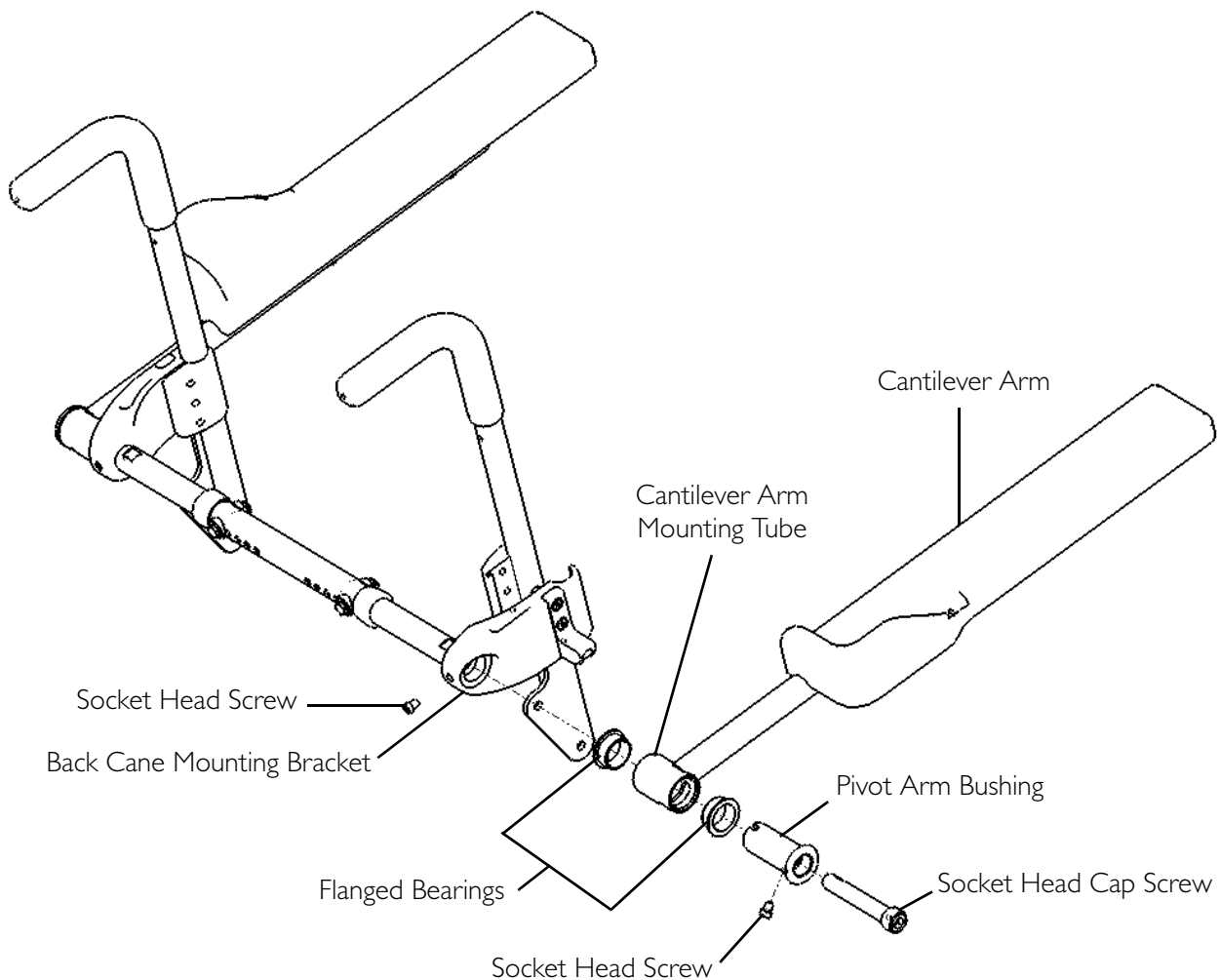


FIGURE 8.3 Installing/Removing the Cantilever Arms

Adjusting the Height of the Cantilever Arms

NOTE: For this procedure, refer to FIGURE 8.4.

1. Adjust the angle of the cantilever arms to allow access to the hardware that attaches the mounting brackets to the back canes. Refer to [Adjusting the Angle of the Cantilever Arms](#).
2. Loosen the three screws that secure the back cane mounting bracket to the back cane. Repeat to loosen the opposite back cane mounting bracket.
3. Adjust the position of mounting brackets and spreader bar up or down the back cane to desired height.
4. Tighten the screws on both back cane mounting brackets to secure the back cane mounting brackets at the desired height obtained in STEP 3.
5. Adjust the angle of the cantilever arms to accommodate the user. Refer to [Adjusting the Angle of the Cantilever Arms](#) on page 47.

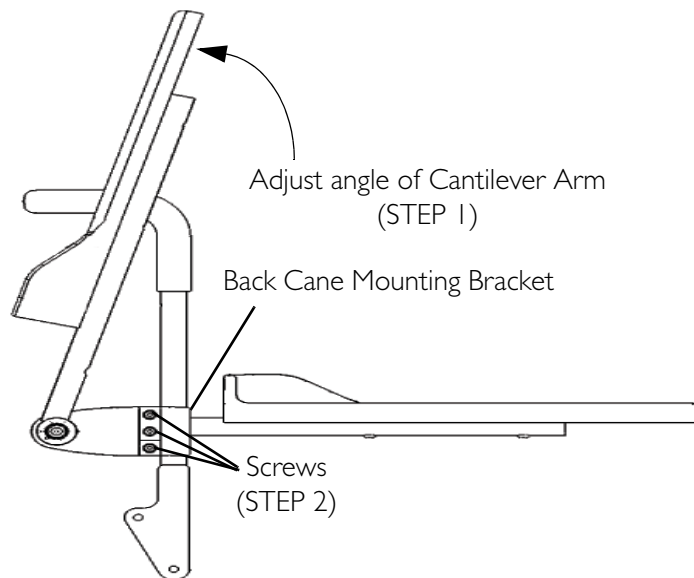


FIGURE 8.4 Adjusting the Height of the Cantilever Arms

Adjusting the Angle of the Cantilever Arms

NOTE: For this procedure, refer to FIGURE 8.5.

NOTE: Access to the adjustment screw is on the bottom of the arm tube.

1. Adjust the cantilever arm angle as necessary to accommodate the user.
 - To adjust the arm angle down, turn the adjustment screw clockwise.
 - To adjust the arm angle up, turn the adjustment screw counterclockwise.
2. Repeat STEP 1 to adjust the other cantilever arm (as necessary).

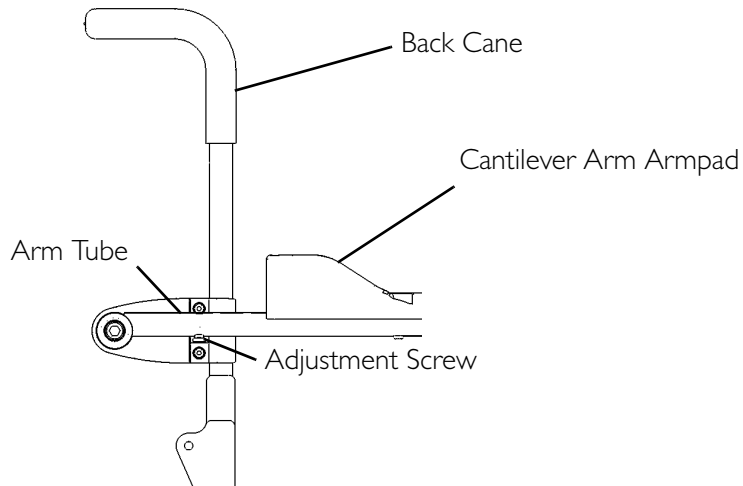


FIGURE 8.5 Adjusting the Angle of the Cantilever Arms

Installing/Removing the Cantilever Arm Armpad

NOTE: For this procedure, refer to FIGURE 8.6.

NOTE: Reverse this procedure to remove the cantilever arm armpad.

Secure the new armpad to the cantilever arm tube with two screws.

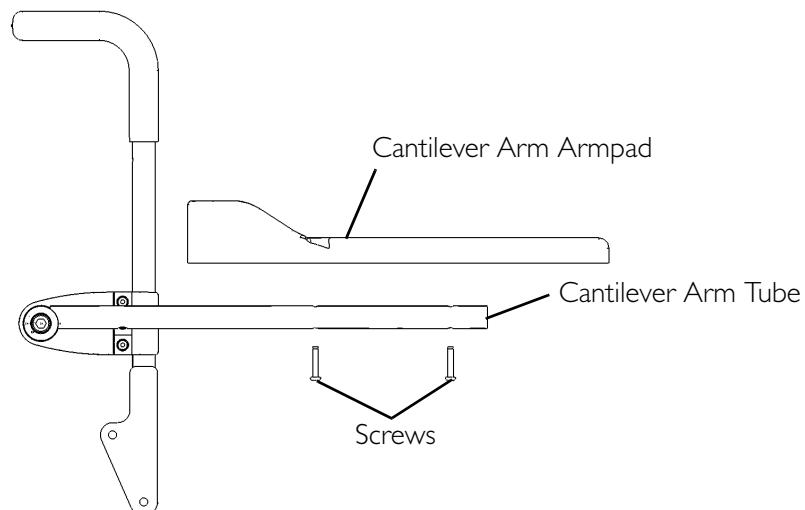


FIGURE 8.6 Installing/Removing the Cantilever Arm Armpad

SECTION 9—ADULT BACKS

⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

Before performing any maintenance, adjustments or service, ALWAYS turn the wheelchair power off, otherwise injury or damage may result.

Removing/Installing the Contoura Back

NOTE: For this procedure, refer to FIGURE 9.1 on page 49.

Removing the Contoura Back

1. Remove back cushion.
2. Remove the two mounting screws that secure the lower front mounting brackets to the back canes.
3. Remove the four socket screws, washers and locknuts (not shown) that secure the four front and rear mounting brackets.
4. Remove the Contoura back and hardware from the back canes.

Installing the Contoura Back

1. Position the front mounting brackets against the back canes.
2. Secure the lower front mounting brackets to the back canes using the two mounting screws. Torque to 32 in-lbs \pm 20%.
3. Insert the tab of the rear mounting bracket into the slot in the front mounting bracket.
4. Secure the four rear mounting brackets to the four front mounting brackets using the four socket screws, washers and locknuts (not shown). Torque to 75 in-lbs \pm 20%.
5. If necessary, tighten the socket screws and locknuts securing the front mounting brackets to the slot in the Contoura back. Torque to 75 in-lbs \pm 20%.

Removing the Mounting Hardware from the Contoura Back

1. Remove the four socket screws, eight washers and four locknuts that secure the front mounting bracket to the Contoura back.
2. Remove the hardware from the back.

Installing the Mounting Hardware onto the Contoura Back

1. Secure two of the front mounting brackets to the mounting holes in the Contoura back using two socket screws, four washers and two locknuts. Torque to 75 in-lbs \pm 20%.
2. Loosely attach the remaining two front mounting brackets to the slots in the Contoura back using two socket screws, four washers and two locknuts.

NOTE: The two socket screws and locknuts will be tightened when the Contoura back is installed onto the back canes.

3. Install the Contoura back. Refer to [Installing the Contoura Back](#) on page 48.

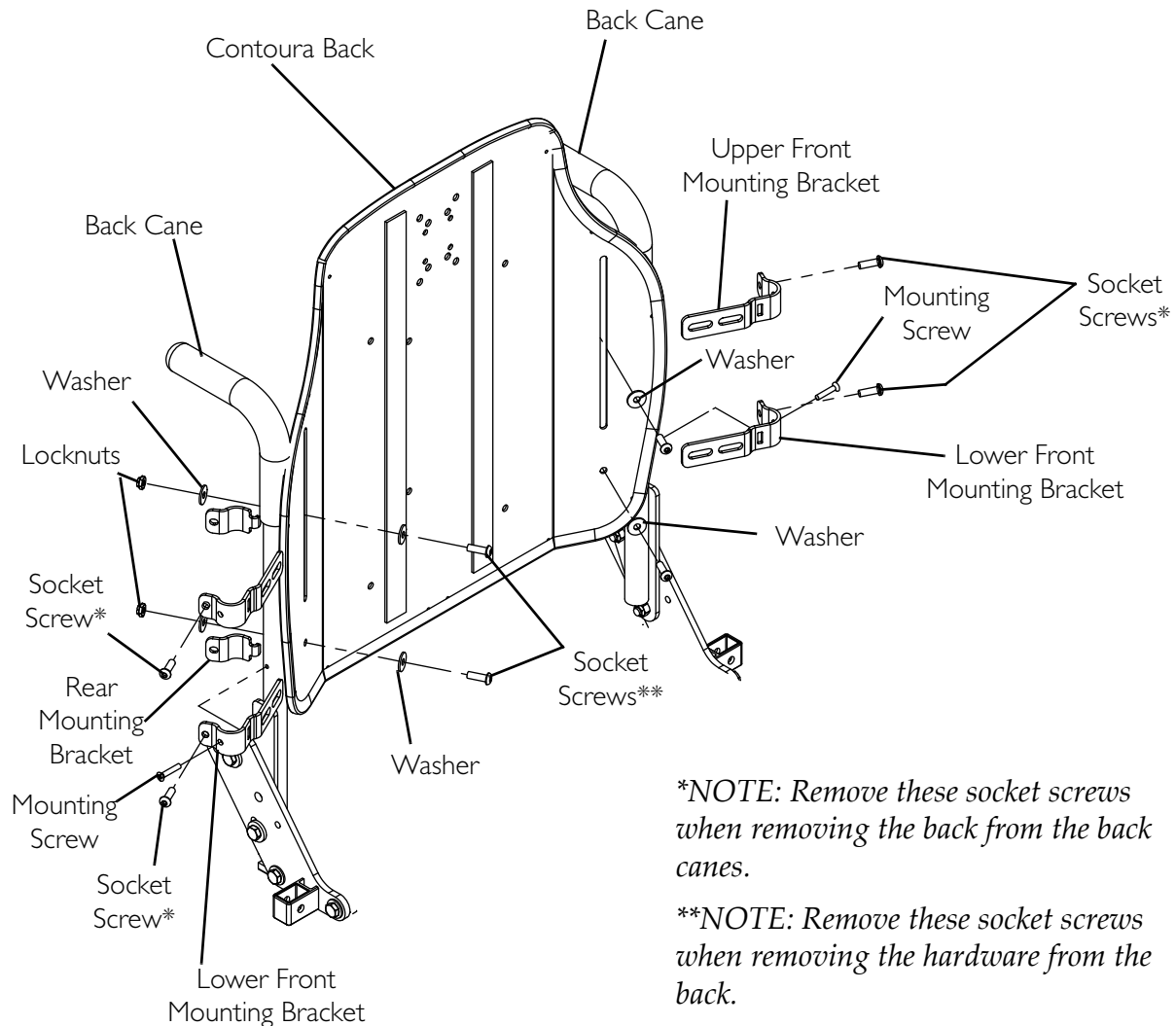


FIGURE 9.1 Removing/Installing the Contoura Back

Adjusting the Back Width

A new back pan is required when the back width is adjusted. Back width **MUST** be adjusted with seat width. Refer to [Adjusting the Seat Width](#) on page 62.

Contoura Backs Only - Seat and back widths are restricted to 16, 18, 20, 22 or 24 inches.

Adjusting the Back Angle

⚠ WARNING

Wheelchairs with TRRO Only - Adjusting the back angle from the factory setting will void TRRO compliance. After adjusting the back angle, DO NOT transport an occupied wheelchair in a motor vehicle of any kind. The wheelchair may only be transported in a motor vehicle while unoccupied, and will be considered TRBKTS.

NOTE: For this procedure, refer to FIGURE 9.2.

1. Loosen, but **DO NOT** remove, the two lower hex screws securing the cane brackets to the back canes.
2. Remove the two upper hex screws, washers and locknuts securing the cane brackets to the back canes.
3. Align the upper mounting holes in the back canes with the desired mounting holes in the cane brackets (Detail "A").
4. Install the two upper hex screws, washers and locknuts to secure the cane brackets to the back canes.
5. Torque the locknuts on upper and lower hex screws to 13 ft-lbs \pm 20%.

DETAIL "A" - CANE BRACKET MOUNTING HOLES

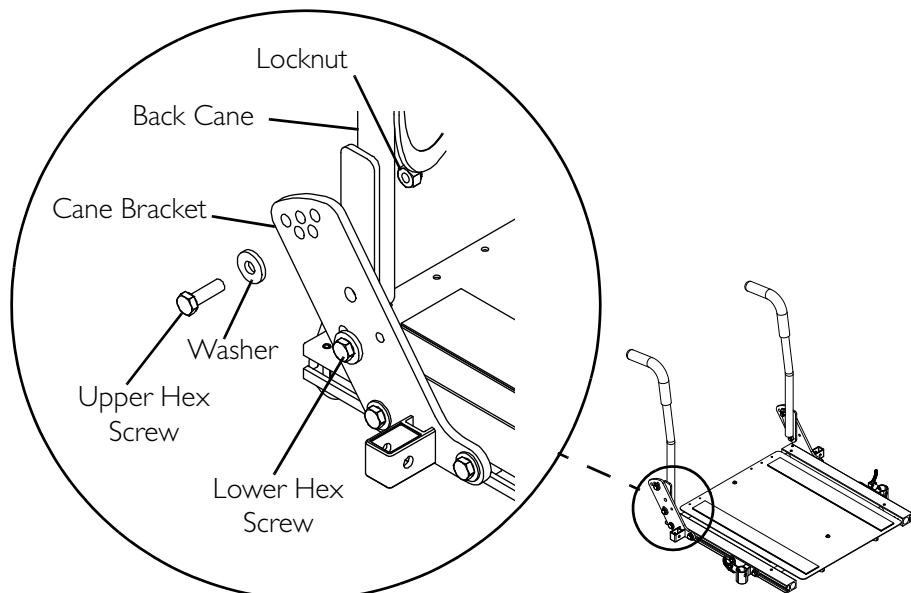
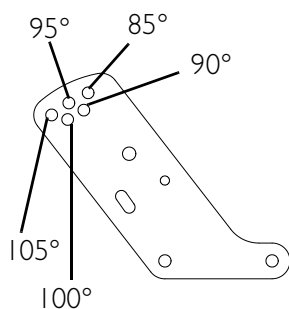


FIGURE 9.2 Adjusting the Back Angle

Adjusting the Back Height

Contoura Backs - There is no height adjustment available for wheelchairs with Contoura backs.

Upholstered Backs - The back canes **MUST** be replaced to adjust the back height for upholstered backs. Refer to [Removing/Installing the Back Canes](#) on page 51.

Removing/Installing the Back Canes

NOTE: For this procedure, refer to FIGURE 9.3 on page 52.

NOTE: Existing hardware will be reused.

NOTE: Take note of position and orientation of mounting hardware for reinstallation.

Removing

1. If applicable, remove the back pan. Refer to [Removing the Contoura Back](#) on page 48.
2. Remove armrest from the wheelchair. Refer to the wheelchair owner's manual.

NOTE: Note the back angle before disassembly for proper reinstallation.

3. For proper installation, note the mounting position of the upper hex screw securing the cane bracket to the back cane.
4. Remove the upper hex screw, washer and locknut securing the cane bracket to the back cane.
5. Remove the lower hex screw, washer and locknut securing the cane bracket to the back cane.
6. Remove the back cane from the wheelchair.
7. Repeat STEPS 2 - 6 for the opposite back cane.

Installing

NOTE: If replacing back canes, discard existing back canes and perform this procedure using new back canes.

1. Install the lower hex screw, washer and locknut through the slot in the cane bracket to secure the cane bracket to the back cane.

NOTE: The cane bracket should be positioned as shown in FIGURE 9.3.

2. Install the upper hex screw, washer and locknut through one of the following:
 - Using the Same Back Angle - the mounting hole noted in STEP 3 of [Removing](#) on page 51.
 - Changing the Back Angle - the mounting hole determined in [Adjusting the Back Angle](#) on page 50.
3. Torque both locknuts to 13 ft-lbs.

4. Repeat STEPS 1 - 3 for the opposite back cane.
5. Reinstall the flip back armrest onto the wheelchair. Refer to the wheelchair owner's manual.
6. If applicable, install the back pan. Refer to [Installing the Contoura Back](#) on page 48.

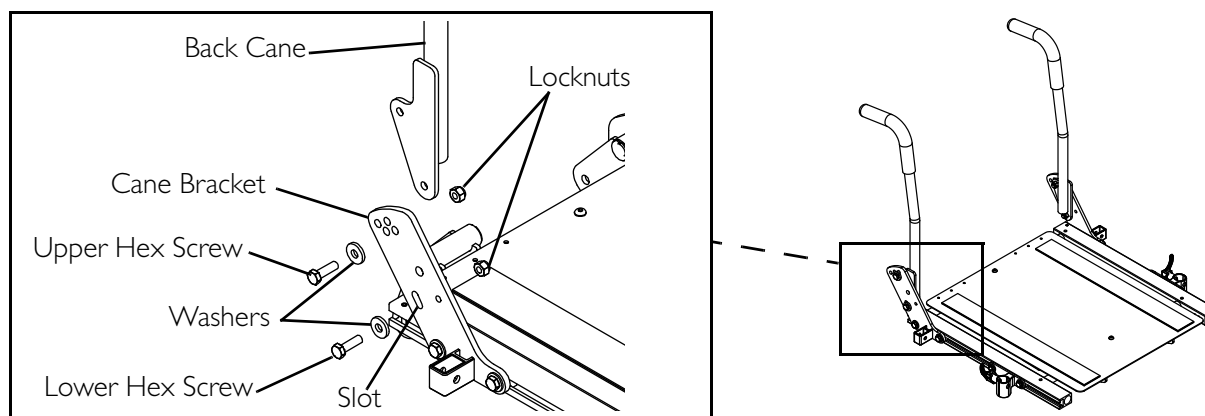


FIGURE 9.3 Removing/Installing the Back Canes

Removing/Installing the Spreader Bar

NOTE: For this procedure, refer to FIGURE 9.4 on page 53.

NOTE: This procedure only applies to systems without Contoura backs that omit upholstery.

Removing

1. Remove the two mounting screws and locknuts securing the spreader bar to the back canes.
2. Remove the spreader bar from the back canes.

Installing

1. Position the spreader bar against the back canes.
2. Loosely install the two mounting screws and locknuts hold the spreader bar against the back canes.
3. Adjust the position of the spreader bar until it is parallel with the ground/floor.
4. Torque the mounting screws to 13 ft-lbs \pm 20%.

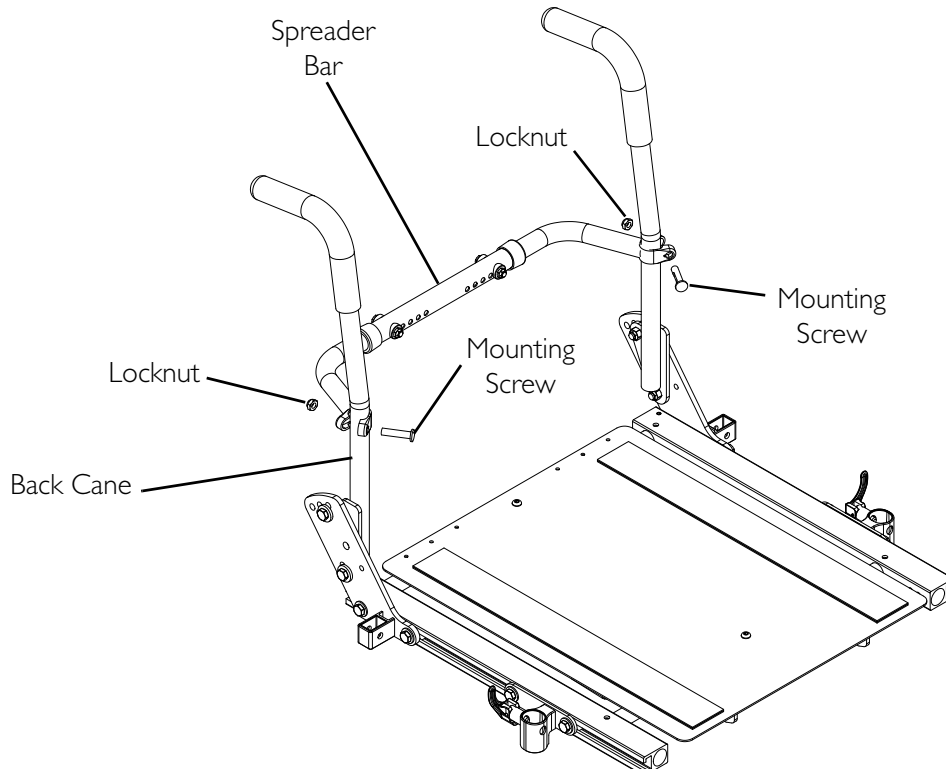


FIGURE 9.4 Removing/Installing the Spreader Bar

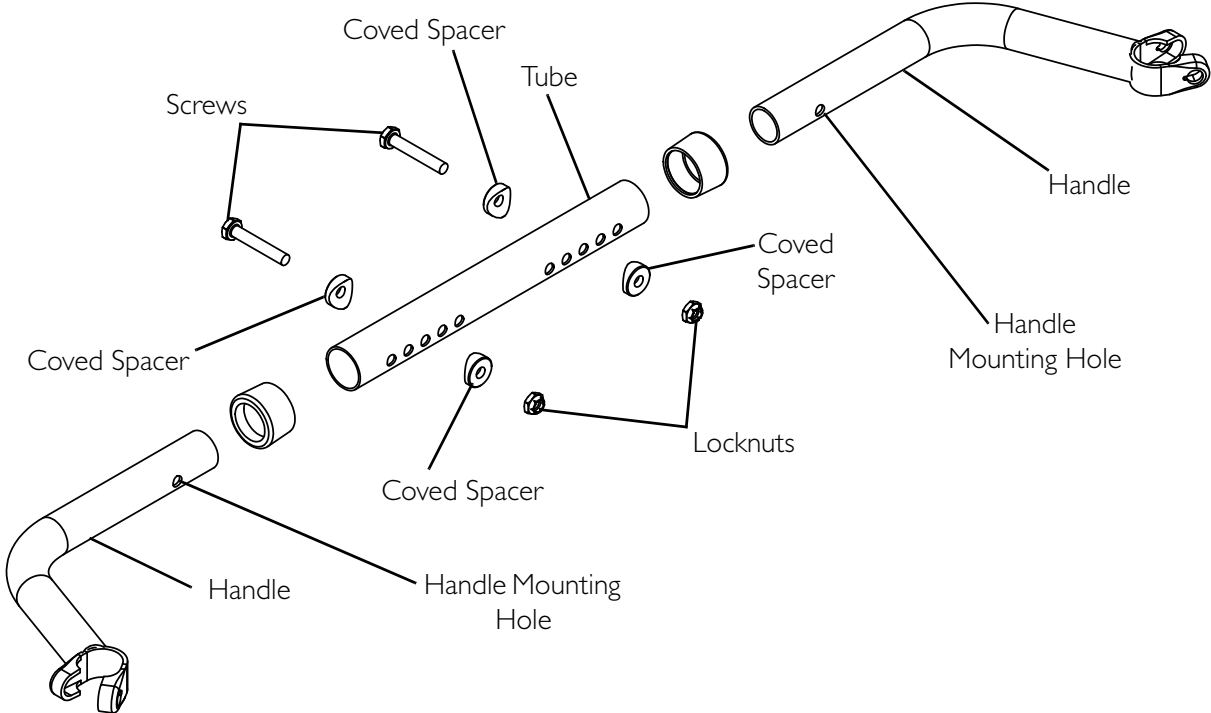
Adjusting Spreader Bar Width

NOTE: For this procedure, refer to FIGURE 9.5 on page 54.

NOTE: The spreader bar can be adjusted from 16 to 20 inches or from 20 to 24 inches.

NOTE: This procedure only applies to systems without Contoura backs that omit upholstery.

1. Remove spreader bar. Refer to [Removing/Installing the Spreader Bar](#) on page 52.
2. Remove the two screws, four coved spacers and two locknuts securing the two handles to the tube.
3. Align the handle mounting holes with the desired tube mounting holes.
4. Secure the two handles to the tube using the two screws, four coved spacers and two locknuts. Torque to 75 in-lbs \pm 20%.



DETAIL "A" - TUBE MOUNTING HOLES

16 to 20-inch Tube

20 to 24-inch Tube

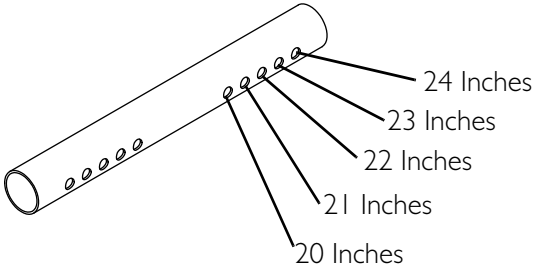
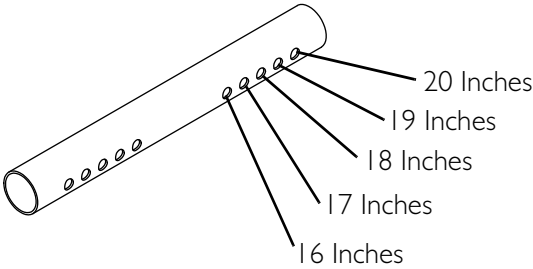


FIGURE 9.5 Adjusting Spreader Bar Width

SECTION 10—JUNIOR BACKS

⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

Before performing any maintenance, adjustments or service, ALWAYS turn the wheelchair power off, otherwise injury or damage may result.

Adjusting the Back Width

A new back pan is required when the back width is adjusted. Back width **MUST** be adjusted with seat width. Refer to [Adjusting the Seat Width](#) on page 72.

Adjusting the Back Angle

⚠ WARNING

Wheelchairs with TRRO Only - Adjusting the back angle from the factory setting will void TRRO compliance. After adjusting the back angle, DO NOT transport an occupied wheelchair in a motor vehicle of any kind. The wheelchair may only be transported in a motor vehicle while unoccupied, and will be considered TRBKTS.

NOTE: For this procedure, refer to FIGURE 10.1 on page 56.

1. Loosen, but **DO NOT** remove, the two lower mounting screws securing the cane brackets to the back canes and inserts.
2. Remove the two upper mounting screws, washers*, two coved washers and two locknuts securing the cane brackets to the back canes and inserts.

**NOTE: Non-TRRO wheelchairs have four washers and TRRO wheelchairs have two washers.*

3. Align the upper mounting holes in the back canes and inserts with the desired mounting holes in the cane brackets (Detail "A").
4. Install the two upper mounting screws, washers*, coved washers and locknuts to secure the cane brackets to the back canes.
5. Torque the locknuts on upper and lower mounting screws to 156 in-lbs \pm 20%.

DETAIL "A" - BACK ANGLE MOUNTING HOLES

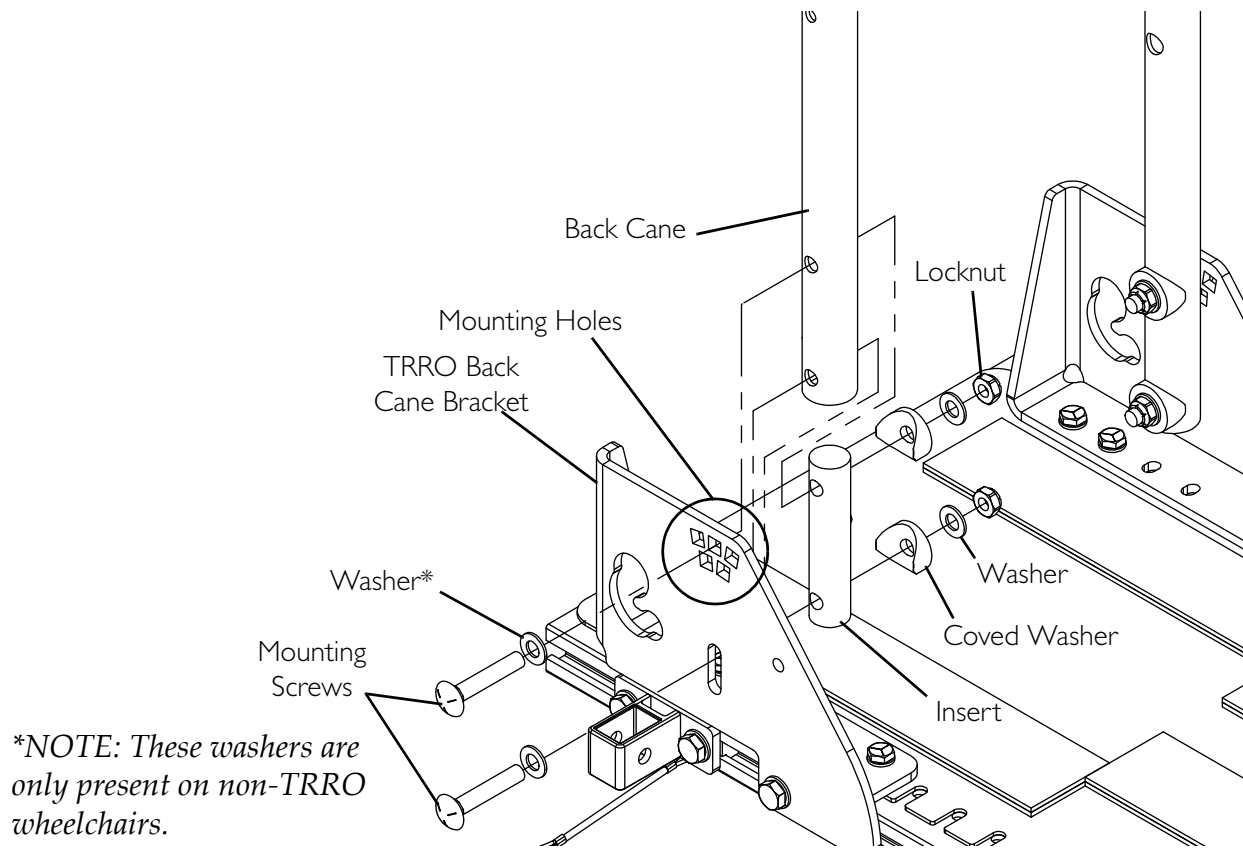
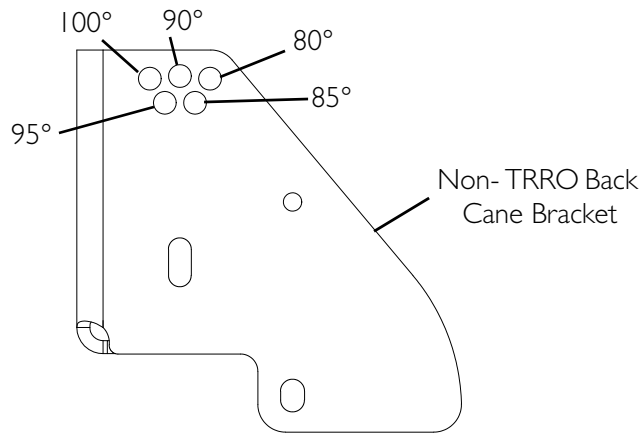


FIGURE 10.1 Adjusting the Back Angle

Adjusting the Back Height

NOTE: For this procedure, refer to FIGURE 10.2.

1. Remove the two mounting screws and locknuts securing the push handle to the back cane.
2. Align the push handle mounting holes with the desired back cane mounting holes.
3. Secure the push handle to the back cane using the two mounting screws and locknuts. Torque to 75 in-lbs \pm 20%.

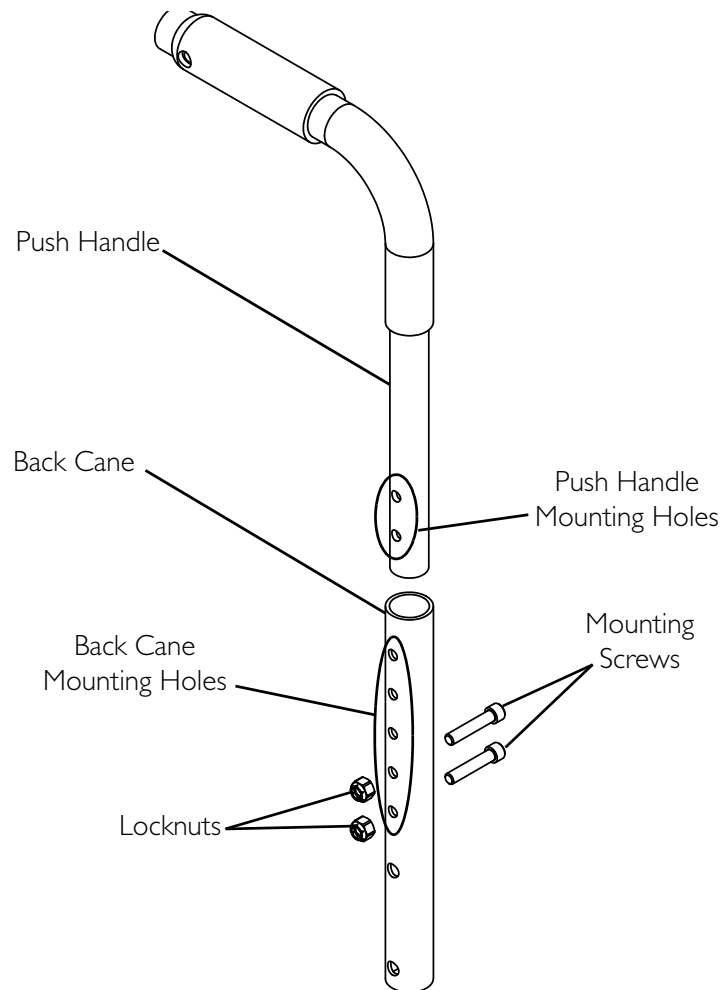


FIGURE 10.2 Adjusting the Back Height

Removing/Installing the Back Canes

NOTE: For this procedure, refer to FIGURE 10.3.

NOTE: Existing hardware will be reused.

NOTE: Take note of position and orientation of mounting hardware for reinstallation.

Removing

1. Remove the two mounting screws, washers*, coved washers and locknuts securing the cane brackets to the back canes and inserts.

**NOTE: Non-TRRO wheelchairs have four washers and TRRO wheelchairs have two washers.*

NOTE: The insert will fall out of the bottom of the back cane. Retain it for proper installation.

2. Remove the back cane from the back cane brackets.
3. Repeat STEPS 1-2 for the opposite side.

Installing

1. Position the insert in the bottom of the back cane.
2. Rotate the insert until the mounting holes align with the back cane mounting holes.
3. Align the mounting holes in the back canes and inserts with the mounting holes in the cane brackets.
4. Install the two mounting screws, washers*, coved washers and locknuts to secure the cane brackets to the back canes.

**NOTE: Non-TRRO wheelchairs have four washers and TRRO wheelchairs have two washers.*

5. Torque the locknuts to 156 in-lbs \pm 20%.
6. Repeat STEPS 1-5 for the opposite side.

NOTE: TRRO back cane bracket shown.

**NOTE: These washers are only present on non-TRRO wheelchairs.*

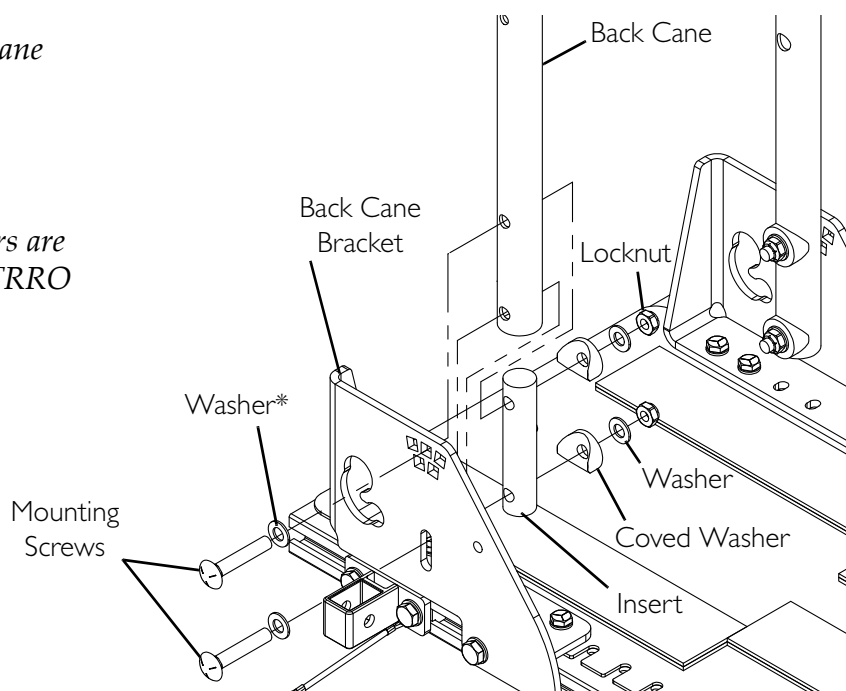


FIGURE 10.3 Removing/Installing the Back Canes

Removing/Installing the Spreader Bar

NOTE: For this procedure, refer to FIGURE 10.4.

Removing

1. Remove the spreader bar cover.
2. Remove the two mounting screws securing the spreader bar to the back canes.
3. Remove the spreader bar from the back canes.

Installing

1. Position the spreader bar against the back canes.
2. Ensure the ends of the spreader bar are flush with the back canes.
3. Loosely install the two mounting screws to secure the spreader bar to the back canes. Torque to 75 in-lbs \pm 20%.
4. Install the spreader bar cover.

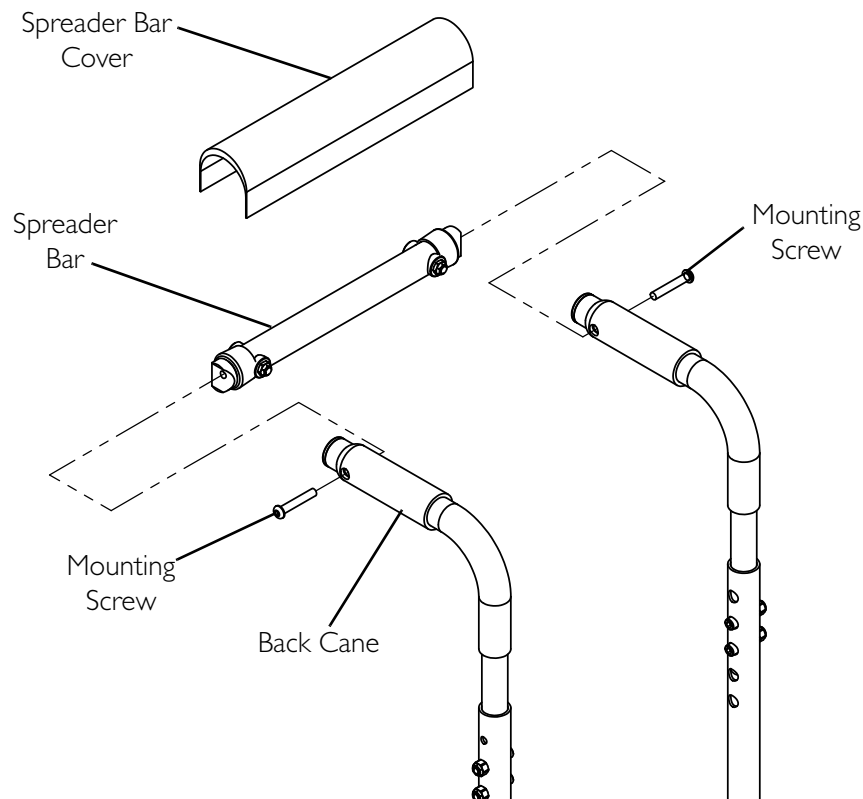
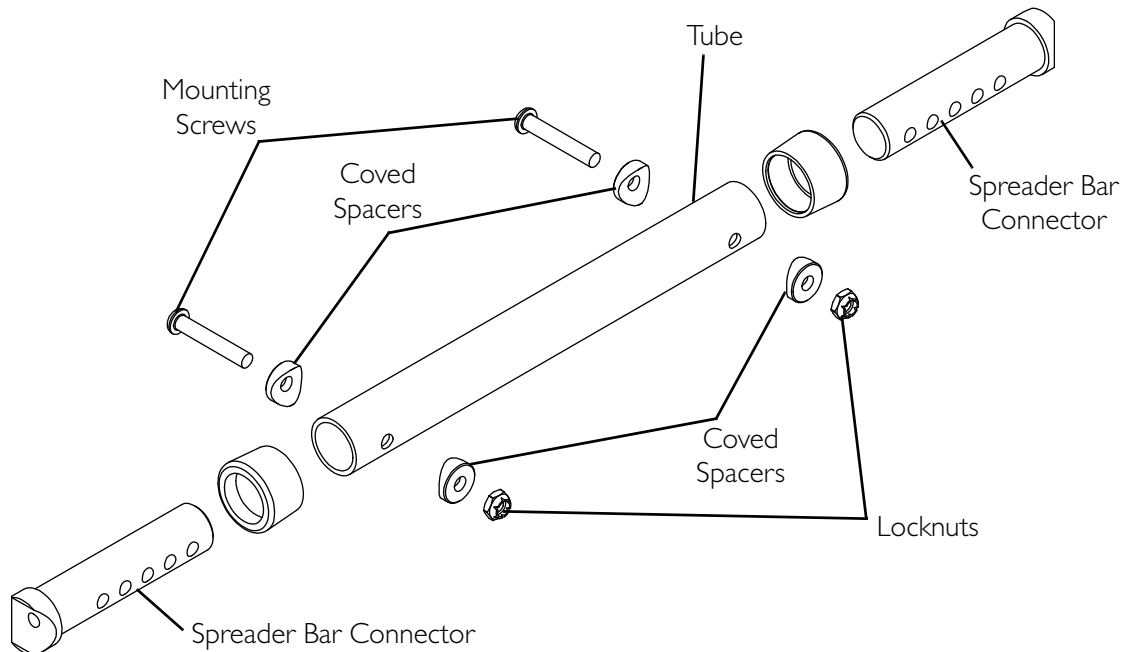


FIGURE 10.4 Removing/Installing the Spreader Bar

Adjusting Spreader Bar Width

NOTE: For this procedure, refer to FIGURE 10.5.

1. Remove spreader bar. Refer to Removing/Installing the Spreader Bar on page 59.
2. Remove the two mounting screws, four covered spacers and two locknuts securing the spreader bar connectors to the tube.
3. Slide the spreader bar connectors in or out to the desired mounting position (Detail "A").
4. Secure the spreader bar connectors to the tube using the two mounting screws, four covered spacers and two locknuts. Torque to 75 in-lbs \pm 20%.
5. Install the spreader bar. Refer to Removing/Installing the Spreader Bar on page 59.



DETAIL "A" - SPREADER BAR WIDTH POSITIONS

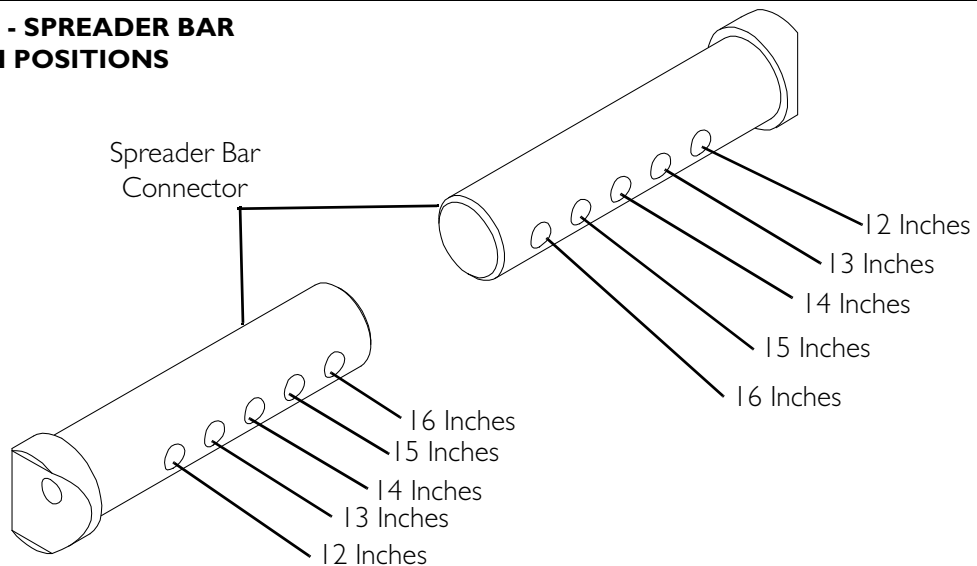


FIGURE 10.5 Adjusting Spreader Bar Width

SECTION 11—ADULT SEATS

⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

Before performing any maintenance, adjustments or service, **ALWAYS** turn the wheelchair power off, otherwise injury or damage may result.

Removing/Installing the Seat Pan

NOTE: For this procedure, refer to FIGURE 11.1.

Removing

1. Remove the seat cushion.
2. Remove the two socket screws securing the seat pan to the seat frame.
3. Remove the seat pan from the seat frame.

Installing

1. Position the new seat pan onto the seat frame as shown.
2. Secure the new seat pan to the seat frame using the two socket screws.
3. Install the seat cushion.

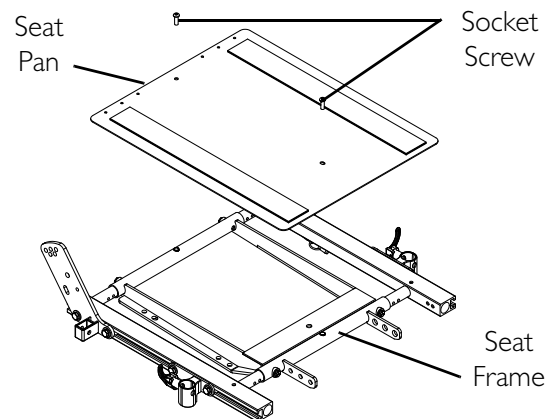


FIGURE 11.1 Removing/Installing the Seat Pan

Adjusting the Seat Width

NOTE: For this procedure, refer to FIGURE 11.2 on page 64.

Seat Width Adjustment Table

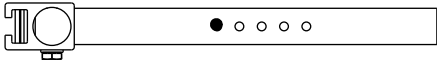
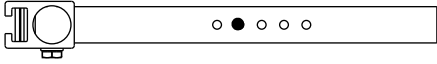
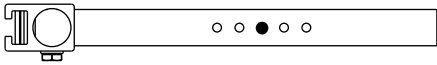
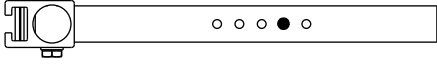
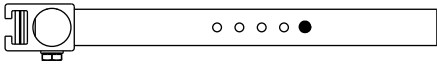
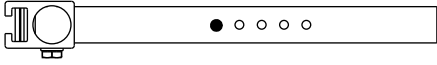
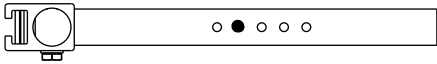
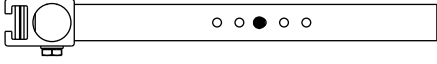
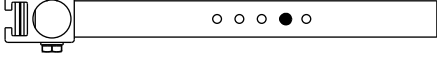
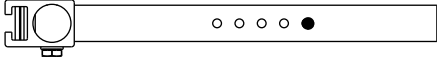
FRAME SIZE	SEAT WIDTH RANGE
SMALL	16 - 20 inches in 1-inch increments
LARGE	20 - 24 inches in 1-inch increments

NOTE: If adjusting the seat width beyond the range of the existing seat frame, the crossbars must be replaced.

NOTE: The spreader bar MUST be replaced for systems ordered omit upholstery option when changing between the small frame size and the large frame size.

1. If necessary, remove the spreader bar. Refer to Removing/Installing the Spreader Bar on page 52.
2. Remove the hex screw and coved washers securing each crossbar to the seat frame.
3. Examine the Seat Width Adjustment Table to determine if the seat width adjustment is within or beyond the range of the existing seat frame.
4. Perform one of the following:
 - Within the Range - Proceed to STEP 5.
 - Beyond the Range - Perform the following steps (Detail "A"):
 - i. Remove the two hex screws securing the crossbars to each side rail.
 - ii. Remove the crossbars from the side rails.
 - iii. Insert new crossbars into the side rails.
 - iv. Position the new crossbars so the mounting hole is facing down and aligned with the side rail mounting hole.
 - v. Secure the new crossbars to the side rails using the two hex screws. Torque the hex screws to 75 in-lbs \pm 20%.
5. Pull/push the side rails (Detail "B") to the desired width shown in the following table.

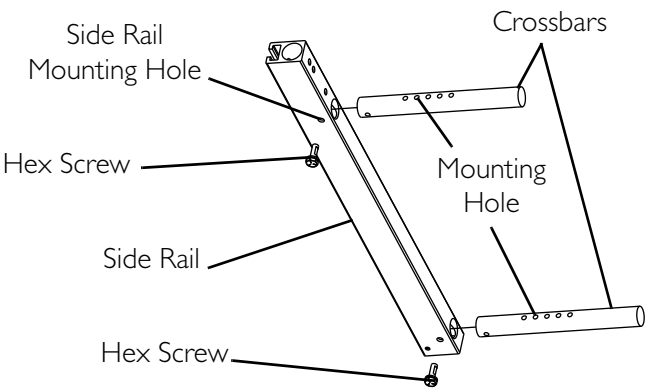
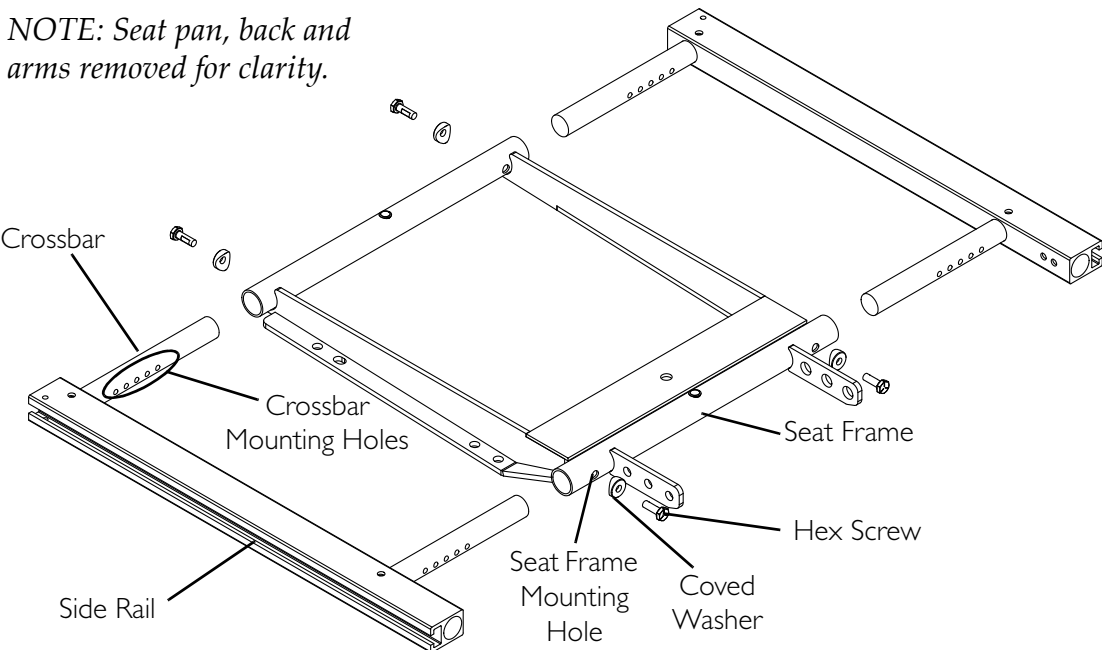
Seat Width Mounting Holes

FRAME SIZE	SEAT WIDTH	SIDE RAIL MOUNTING HOLES* (FRONT VIEW)
SMALL	16-INCH	
	17-INCH	
	18-INCH	
	19-INCH	
	20-INCH	
LARGE	20-INCH	
	21-INCH	
	22-INCH	
	23-INCH	
	24-INCH	

**NOTE: Only left side rail shown. Use the same mounting hole for opposite side rail.*

6. Align the crossbar mounting holes with the seat frame mounting holes.
7. Secure each crossbar to the seat frame with a hex screw and covered washer. Torque the hex screw to 75 in-lbs \pm 20%.
8. If necessary, install the new spreader bar. Refer to [Removing/Installing the Spreader Bar](#) on page 52.

NOTE: Seat pan, back and arms removed for clarity.



DETAIL "A" - REPLACING THE CROSSBARS

FIGURE 11.2 Adjusting the Seat Width

Adjusting the Seat Depth

NOTE: For this procedure, refer to FIGURE 11.3 on page 66.

1. Examine the following chart to determine if the desired seat depth adjustment is within or beyond the range of the existing seat frame.

FRAME SIZE	SEAT DEPTH RANGE
SMALL	16 - 19 inches in 1-inch increments
LARGE	19 - 22 inches in 1-inch increments

2. Perform one of the following:
 - Seat Depth Adjustment is Within the Range of Existing Seat Frame - Proceed to STEP 3.
 - Seat Depth Adjustment is Beyond the Range of Existing Seat Frame - Replace the side rails. Refer to [Removing/Installing Side Rails](#) on page 66.
3. Loosen, but DO NOT remove, the four hex screws and washers securing the bottom of the cane brackets to the side rails.
4. Loosen, but DO NOT remove, the four hex screws securing the front arm sockets to the side rails.
5. Use the following [Seat Depth Adjustment Table](#) to determine the distance required to obtain the desired seat depth.

Seat Depth Adjustment Table

SEAT DEPTH	DISTANCE* (IN INCHES)
16-INCH	5.50
17-INCH	4.50
18-INCH	3.50
19-INCH	2.50 (Small Frame) 5.50 (Large Frame)
20-INCH	4.50
21-INCH	3.50
22-INCH	2.50

*NOTE: Distance is between the rear of the rear arm socket and the rear of the side rail (Detail "A").

6. Measure the distance determined in STEP 5 from the end of the side rail.
7. Slide the cane brackets along the side rails to align the rear of the rear arm socket with the distance measured in STEP 6.
8. Secure the cane brackets to the side rails with the four hex screws and washers. Torque the hex screws to 13 ft-lbs.
9. Secure the front arm sockets to the side rails with the four hex screws. Torque the hex screws to 13 ft-lbs.

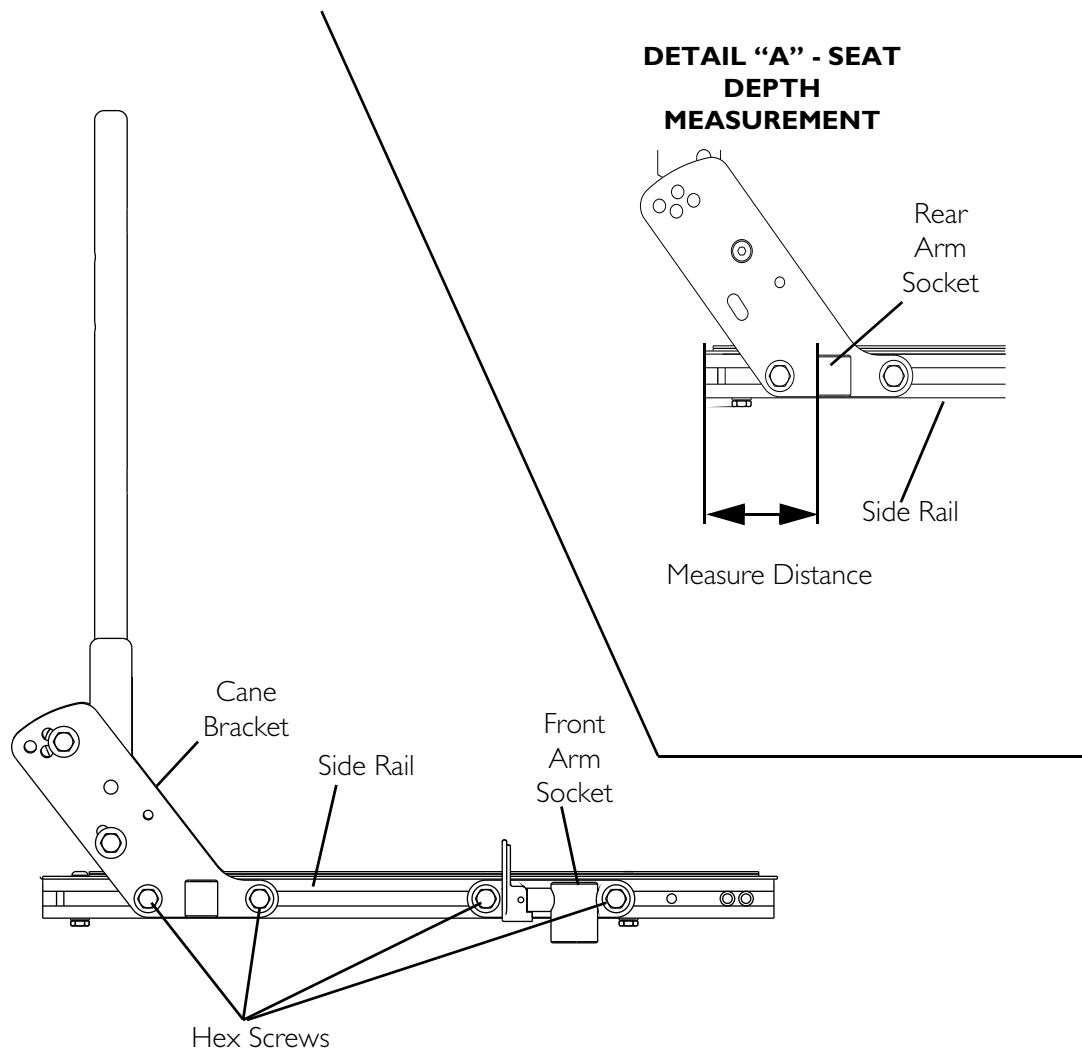


FIGURE 11.3 Adjusting the Seat Depth

Removing/Installing Side Rails

NOTE: For this procedure, refer to FIGURE 11.4 on page 67.

Removing Side Rails

1. Remove both armrests.
2. Remove the two hex screws, washer and lanyard securing the crossbars to the side rail.
3. Loosen, but DO NOT remove, the four hex screws securing the cane brackets to the side rails.
4. Loosen, but DO NOT remove, the four hex screws securing the front arm sockets to the side rails.
5. Use a screwdriver to gently tap the two roll pins out of the side rails.
6. Slide both cane brackets (with T-nuts and back canes) out of the slots in the side rails.

7. Slide both front arm sockets (with T-nuts) out of the slots in the side rails.
8. Pull both side rails off the crossbars.

Installing Side Rails

1. Install new side rails onto crossbars.

NOTE: Ensure long end of side rail is towards the front of the wheelchair.

2. Secure the side rails to the crossbars with the hex screws, washer and lanyard. Torque to 75 in-lbs \pm 20%.
3. Slide cane brackets (with T-nuts and back assembly) into the slots in the side rails.
4. Slide front arm sockets (with T-nuts) into the slots in the side rails.
5. Use a rubber mallet to tap the two roll pins into the side rails.
6. Adjust the seat depth. Refer to [Adjusting the Seat Depth](#) on page 65.
7. Tighten the four hex screws to secure the cane brackets to the side rails. Torque to 13 ft-lbs \pm 20%.
8. Install the armrests.

NOTE: It may be necessary to slide the front arm sockets to the proper position to install the armrests.

9. Tighten the four hex screws to secure the front arm sockets to the side rails. Torque to 13 ft-lbs \pm 20%.

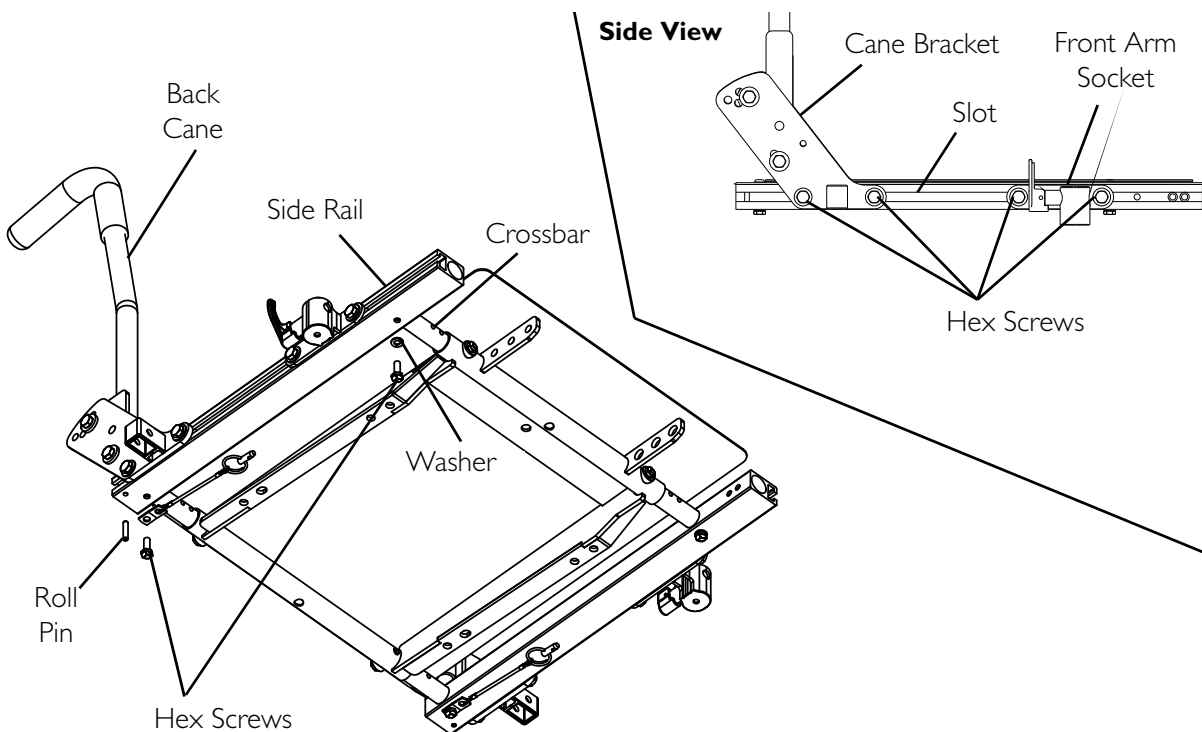


FIGURE II.4 Removing/Installing Side Rails

SECTION 12—JUNIOR SEATS

⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

Before performing any maintenance, adjustments or service, ALWAYS turn the wheelchair power off, otherwise injury or damage may result.

Removing/Installing the Seat Pan

NOTE: For this procedure, refer to FIGURE 12.1 on page 70 and FIGURE 12.2 on page 71.

Removing

1. Remove the seat cushion (not shown).
2. 12 to 13-inch Seat Widths Only - Perform the following steps:
 - A. Note the mounting position of one back cane bracket for reinstallation.
 - B. Remove the two hex screws, washer, pin and two locknuts securing one back cane bracket to the top of the side rail.
 - C. Remove the hex screw securing the side of the back cane bracket to the side rail.
 - D. Loosen, but DO NOT remove, the two hex screws securing the remaining back cane bracket to the top of the side rail.
3. Remove the screws and locknuts securing the seat pan to the seat frame.

NOTE: Wheelchairs with power elevating legrests have two screws (FIGURE 12.1 on page 70) and wheelchairs without power elevating legrests have three screws (FIGURE 12.2 on page 71).

4. Remove the seat pan from the seat frame.

Installing

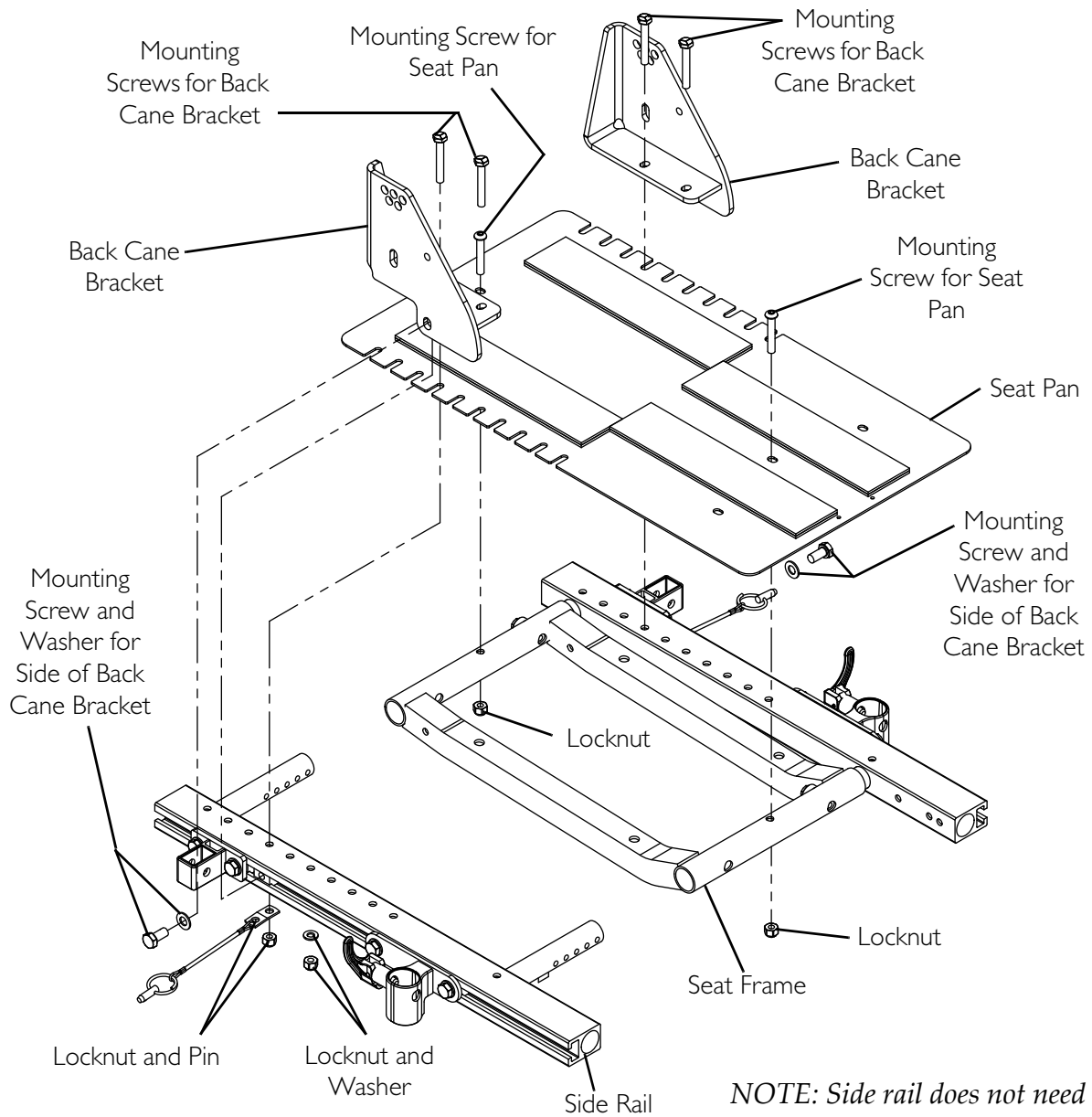
1. Position the seat pan onto the seat frame.

NOTE: For 12 to 13-inch seat widths, the seat pan must be positioned between the back cane bracket and the side rail.

2. 12 to 13-inch Seat Widths - Perform the following steps:
 - A. Position the back cane bracket onto the seat pan and side rail in the position noted in STEP 2A.
 - B. Secure the back cane bracket to the seat pan and side rail using the two hex screws, washer, pin and two locknuts. Torque to 75 in-lbs \pm 20%.
 - C. Secure the side of the back cane bracket to the slot in the side rail using the hex screw. Torque to 156 in-lbs \pm 20%.
 - D. Tighten the two hex screws on the remaining back cane bracket. Torque to 75 in-lbs \pm 20%.
3. Secure the seat pan to the seat frame using the screws and locknuts. Tighten securely.

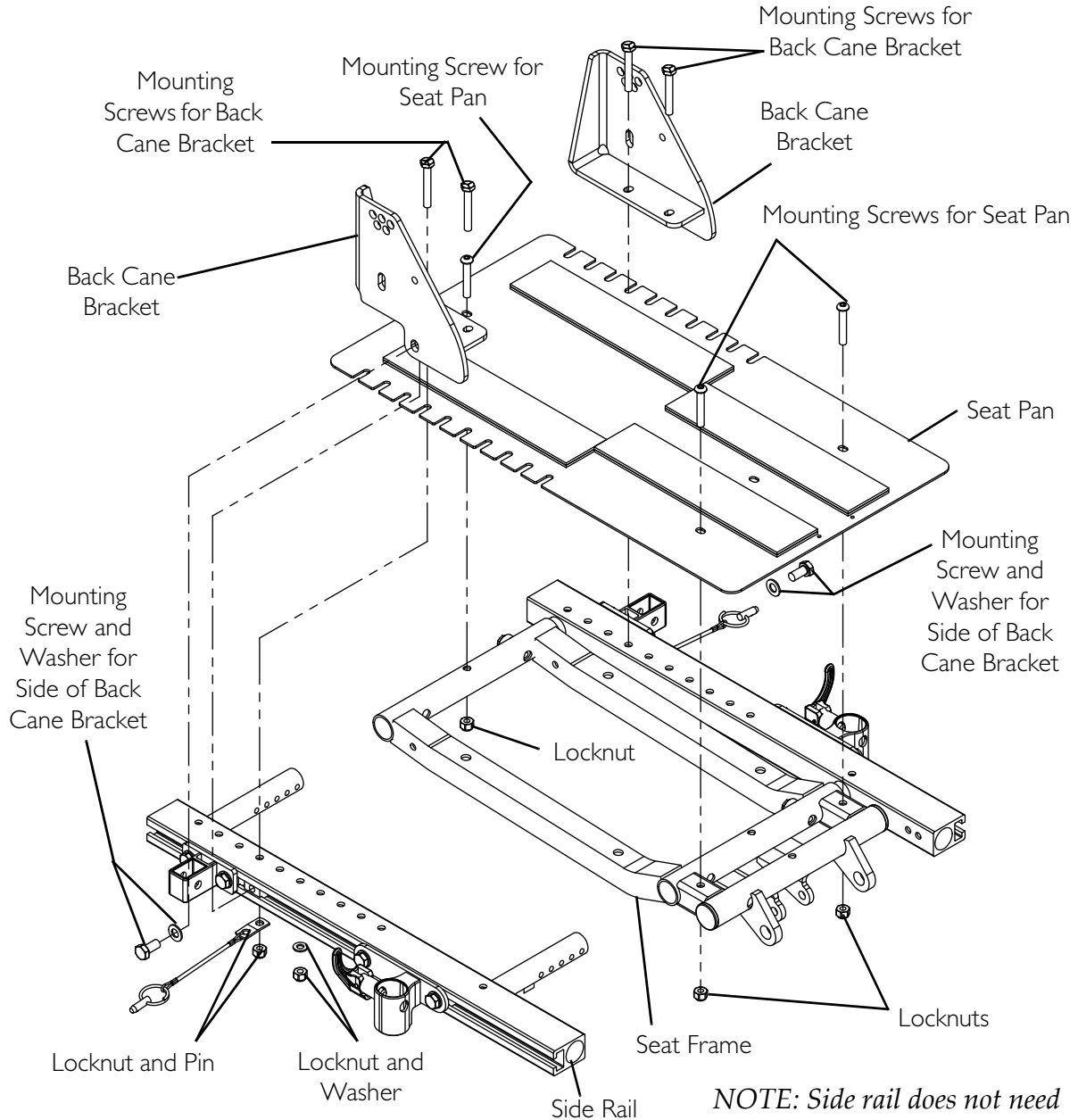
NOTE: Wheelchairs with power elevating legrests have two screws (FIGURE 12.1 on page 70) and wheelchairs without power elevating legrests have three screws (FIGURE 12.2 on page 71).
4. Install the seat cushion (not shown).

Wheelchairs with Power Elevating Legrests



NOTE: Side rail does not need to be removed for this procedure.

FIGURE 12.1 Removing/Installing the Seat Pan

Wheelchairs without Power Elevating Legrests

NOTE: Side rail does not need to be removed for this procedure.

FIGURE 12.2 Removing/Installing the Seat Pan


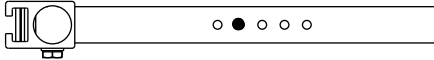
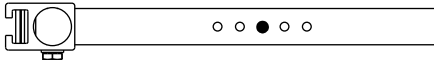

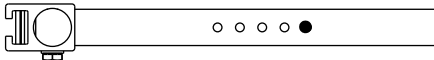
Adjusting the Seat Width

NOTE: For this procedure, refer to FIGURE 12.3 on page 73.

NOTE: For 12 or 13-inch widths, the seat pan must be positioned between the back cane brackets and the seat rails. Refer to Removing/Installing the Seat Pan on page 68 to reposition the seat pan.

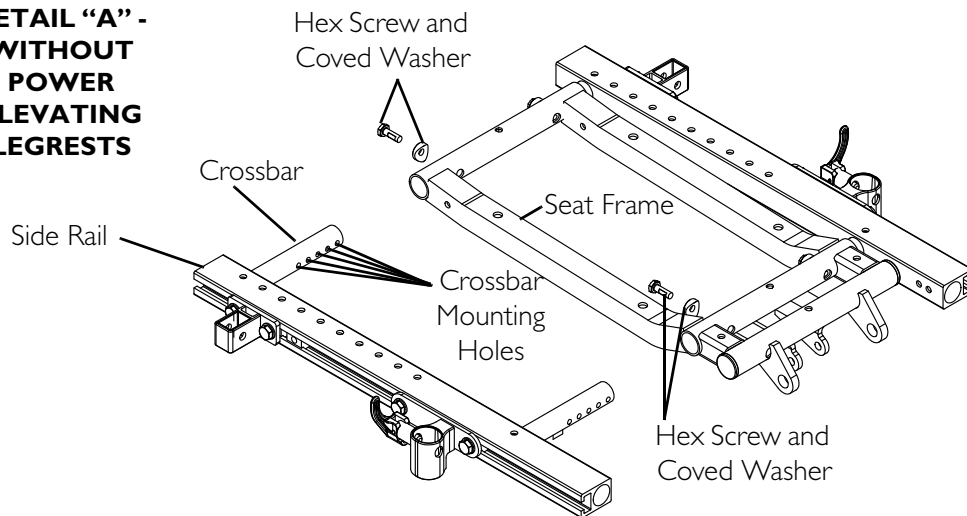
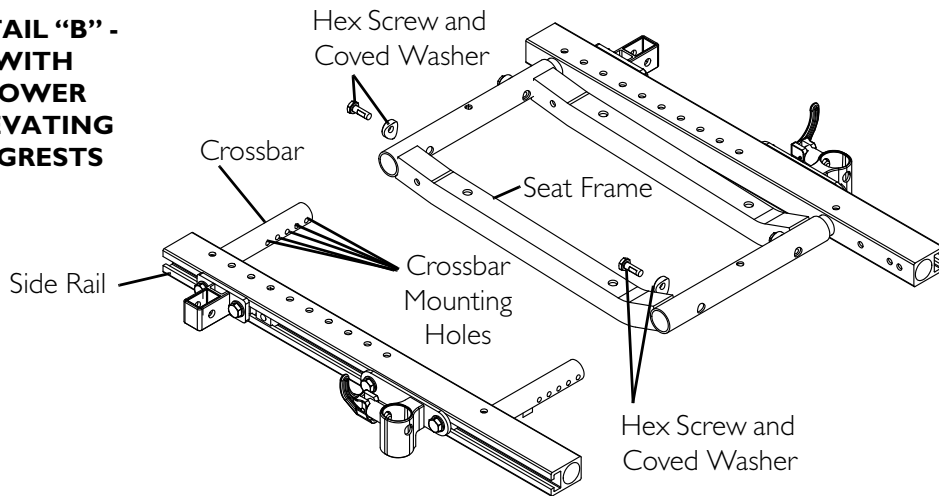
1. Remove the spreader bar. Refer to Removing/Installing the Spreader Bar on page 59.
2. Remove the hex screw and coved washer securing each crossbar to the seat frame.
3. Pull/push the side rails (Detail "B") to the desired width shown in the following table.

Junior Seat Width Mounting Holes

SEAT WIDTH	CROSS BAR MOUNTING HOLES* (FRONT VIEW)
12-INCH	
13-INCH	
14-INCH	
15-INCH	
16-INCH	

*NOTE: Only left side rail shown. Use the same mounting hole for opposite side rail.

4. Align the cross bar mounting holes with the seat frame mounting holes.
5. Secure each crossbar to the seat frame with a hex screw and coved washer. Torque the hex screw to 75 in-lbs \pm 20%.
6. Adjust the spreader bar. Refer to Adjusting Spreader Bar Width on page 60.
7. Install the spreader bar. Refer to Removing/Installing the Spreader Bar on page 59.

**DETAIL “A” -
WITHOUT
POWER
ELEVATING
LEGRESTS****DETAIL “B” -
WITH
POWER
ELEVATING
LEGRESTS****FIGURE 12.3** Adjusting the Seat Width

Adjusting the Seat Depth

NOTE: For this procedure, refer to FIGURE 12.4 on page 75.

1. Loosen, but DO NOT remove, the two hex screws and washers securing the back cane brackets to the slots in the side rails.
2. Loosen, but DO NOT remove, the four hex screws and washers securing the rear arm sockets to the slots in the side rails.
3. Loosen, but DO NOT remove, the four hex screws securing the front arm sockets to the slots in the side rails.
4. Remove the four hex screws securing the back cane brackets to the tops of the side rails.
5. Slide the back cane brackets until the front mounting holes align with the mounting holes for the desired seat depth shown in Detail "A".
6. Secure the back cane brackets to the tops of the side rails using the four hex screws, two washers, two pins and four locknuts. Torque to 75 in-lbs \pm 20%.
7. Tighten the two hex screws and washers securing the back cane brackets to the slots in the side rails. Torque to 156 in-lbs \pm 20%.
8. Use the following Rear Arm Socket Adjustment Table to determine the proper position for the rear arm sockets.

Rear Arm Socket Adjustment Table

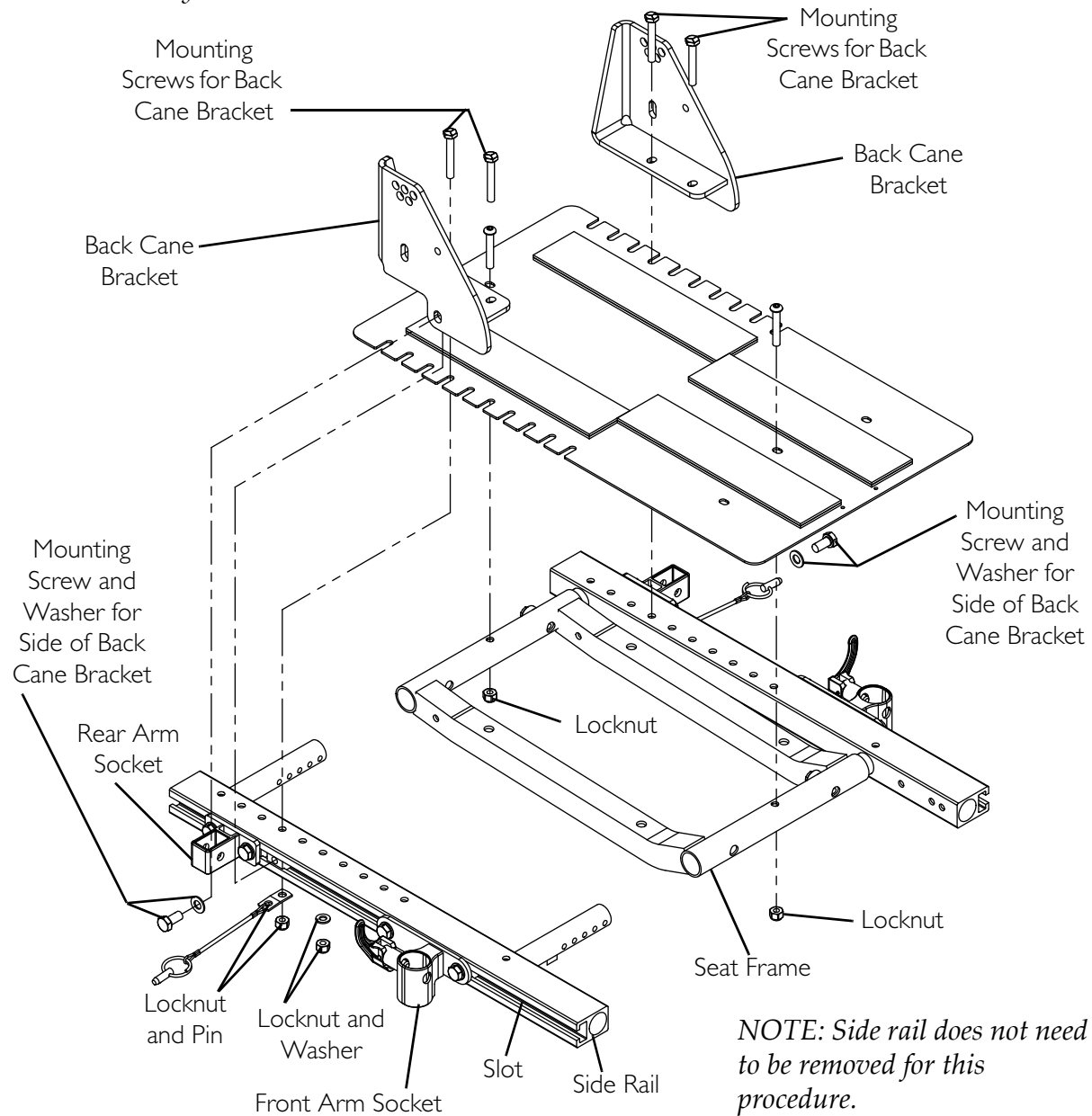
SEAT DEPTH	DISTANCE* (IN INCHES)
12-INCH	4.13
13-INCH	4.13
14-INCH	4.13
15-INCH	3.75
16-INCH	2.75
17-INCH	1.75
18-INCH	0.75

*NOTE: Distance is between the front of the rear arm socket and the rear of the side rail (Detail "B").

9. Measure the distance determined in STEP 8 from the rear of the side rail.
10. Slide the rear arm sockets along the side rails to align the front of the rear arm socket with the distance measured made in STEP 9.
11. Secure the rear arm sockets to the side rails with the four hex screws and washers. Torque the hex screws to 156 in-lbs \pm 20%.
12. Slide the front arm sockets along the side rails until the center of the front arm socket is 10.47 inches from the rear of the rear arm socket.
13. Secure the front arm sockets to the side rails with the four hex screws. Torque the hex screws to 156 in-lbs \pm 20%.

NOTE: Seat pan shown removed for clarity.

NOTE: Seat for power elevating legrests shown. Seats without power elevating legrests adjust in the same way.



DETAIL "A" - SEAT DEPTHS

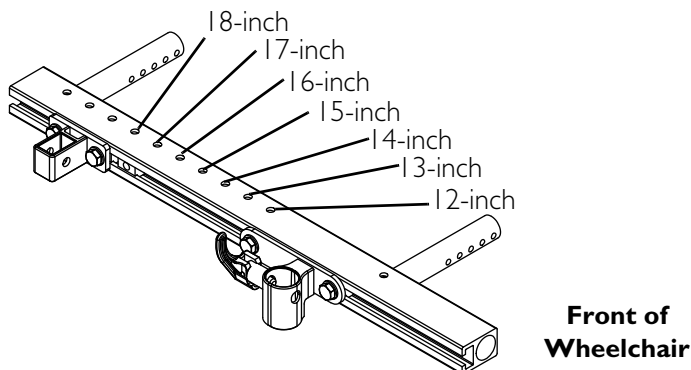


FIGURE 12.4 Adjusting the Seat Depth

LIMITED WARRANTY

For warranty information, please refer to the original owner's manual which came with this product, or contact Invacare for more information.



Yes, you can.

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